PACKAGING SCIENCE

Professors: E. H. Hovel, R. L. Thomas, Chair; A associate Professors: D. K. Cookey, D. O. Darby, R. M. Kimmel, W. S. Whiteside; A assistant Professor: H. P. Batt; Lecturers: G. S. Batt, R. T. Moore; A adjunct Professor: R. C. Cookey; A adjunct A associate Professors: H. J. Park, J. J. Song; A adjunct Lecturers: L. R. Byrne, R. J. Giangorgi

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 Functions of a package: materials, processes, and technology used in package development; the relationship of packaging to the corporation, consumer, and society as a whole. Prereq: PKGSC 101 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. Prereq: 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 alloys and sheets, wood, paper, paperboard, plastics, composites, adhesives, coatings, cushioning media; their functional properties in packaging application; laminating and combining of different packaging materials. Prereq: PKGSC 201 or consent of instructor.

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

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

PKGSC 320 Packaging 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. Prereq: PKGSC 204, 206.

PKGSC 368, H 368 Packaging and Society 3,3,0 The role of packaging in today's society as it specifically relates to the responsibilities of the packaging scientist in protecting people and the environment. Study of environmental regulations and guidelines currently in place. Students present their informed opinions through class discussions and a group project involving a controversial topic. Prereq: PKGSC 102 or consent of instructor.

PKGSC 401, 601 Packaging Machinery 3,0 Systematic study of machinery used to form, fill, seal, laminate, combine, and print continuous and automated packaging lines and auxiliary material handling equipment, including principles of machine design, operation, selection, and specification. Prereq: PKGSC 204, PHYS 207 or consent of instructor.

PKGSC 404, H 404, 604 Mechanical Properties of Packages and Principles of Package Evaluation 3,3,0 Study of the mechanical properties of packages, principles and standard methods (ASTM, TAPPI) of determining these properties. Evaluation of functional properties of packages including shock and vibration isolation. Prereq: PHYS 207, PKGSC 204, or consent of instructor.

PKGSC 409 Total Quality Management for the Food and Packaging Industries 3,3,0 See FDSC 409.

PKGSC 416, 616 Application of Polymers in Packaging 4,3,3 Detailed study of polymer chemistry and polymerization technology. Emphasis is on polymers which are significant in packaging. Study includes polymer morphology, rheology, physical properties, and processing methods. Prereq: PKGSC 204, 206; CH 201 or 223; PHYS 207; or consent of instructor.

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

PKGSC 421 Special Problems in Packaging Science 1-4,0,12 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. Prereq: Consent of instructor.

PKGSC 422 Selected Topics in Packaging Science 1-3,1,3 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. Prereq: 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. Prereq: PKGSC 204, 206; or consent of instructor.

PKGSC 440, 640 Packaging for Distribution 3,3,0 Delivery of a packaged product from point of manufacture to point of sale often involves several shipping methods, e.g., truck, rail, air, or ship. To assure both product protection and lowest cost, students must be familiar with the fundamentals of distribution packaging technology. Prereq: Senior standing, consent of instructor.

PKGSC 454, 654 Package Evaluation Laboratory 2,0,6 Laboratory experiments to determine properties of packaging materials and to evaluate the performance of packages including shipping tests (shock and vibration). Students learn how to operate standard testing apparatus and become familiar with industry-recognized test methods and standards. Prereq: PKGSC 404 or consent of instructor.

PKGSC 476, H 476, 674 Food and Health Care Packaging Systems 4,3,3 Characteristics, engineering properties, and applications of various materials and systems used in the packaging of foods, pharmaceuticals, and medical devices. Packaging systems for specific food and medical applications are considered. Laboratory and field exercises on food and medical packaging operations and packaging materials are included. Emphasis is on evaluation methods. Prereq: PKGSC 201, 204, 206, or consent of instructor.

PKGSC 471, 671 Wood and Paper Packaging 3,3,0 In-depth study of use of wood and paper in packaging. Covers characterization of raw materials, basic conversion processes, and the use of converted products in packaging. Emphasizes the relationship between structure, processing, and properties. Prereq: PKGSC 102 or consent of instructor.

PARKS, RECREATION, AND TOURISM MANAGEMENT


PRTM 101 Concepts of Leisure 3,3,0 Introduces recreation professions and organizations: government, voluntary, and commercial; overviews 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 201, H 201 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 3,3,0 Principles and methods of program development. Time and facility utilization for sports activities, social functions, arts and crafts, outdoor activities, hobbies or special-interest groups, and activities in the cultural and performing arts are pursued. Prereq: PRTM 101.
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. Prereq: 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. Prereq: PRTM 205, Sophomore standing in Parks, Recreation, and Tourism Management.

PRTM (FOR) 209 Professional Application of Microcomputers 3(1,4) Basic competencies in and professional applications of the following areas are realized: GUI, word processing, databases, spreadsheets, graphics, and electronic communication. Legal and ethical issues of computer use and information access and exchange are also presented. Majors in Parks, Recreation, and Tourism Management or Forest Resources will begin enrollment priority.

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

PRTM 241 Introduction to Community Recreation 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, H 270 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(3,0) 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 Golf 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 Seminar I 1(1,0) Introduction to the golf industry, professionalism, and current issues of interest in the industry. Special emphasis is placed on topics covered in the PGA/JGM Training Program Level I. Prereq: PRTM 281.

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 which 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 geriatric 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.

PRTM 308, H 308 Leadership and Group Processes in Recreation 3(3,0) Leadership is analyzed through experience-based learning. Various styles of leadership and communication and their probable consequences are examined. Techniques for planning large and small group meetings are considered. Examination is made of 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, PSYCH 201, or SOC 201; 2.0 cumulative grade-point ratio; consent of instructor.

PRTM 311, H 311 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 314 Therapeutic Recreation Interventions 1(0,3) Experiential examination of program interventions used with mental health, chemically dependent, and related populations. Prereq: PRTM 101, 2.0 cumulative grade-point ratio.

PRTM 315 Therapeutic Recreation Interventions I 1(0,3) Experiential examination of program interventions used with physically disabled and other populations. Prereq: PRTM 314, 2.0 cumulative grade-point ratio.

PRTM 317 Group Initiatives 3(2,2) Examination and development of initiative modalities used by therapeutic recreationalists 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, H 320 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, H 321 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 330, H 330 Visitor Services and Interpretation 3(3,0) Introduction to the philosophy and principles of the art of environmental interpretation. Comprehensive survey of interpretive theory as it applies to the recreation and parks profession and the varying settings within the profession. Prereq: 2.0 cumulative grade-point ratio.

PRTM 342, H 342 Introduction to Tourism 3(3,0) Survey of travel and tourism in the United States with a 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 tourism attractiveness. Prereq: 2.0 cumulative grade-point ratio.

PRTM 344 Tourism Markets and Supply 3(3,0) A quaint study of 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 349 Survey of Tourism Sites 1(0,3) A visit to 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 325 Camp Organization and Administration 3(2,3) Surveys the development and trends of camping in America. Considered 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. Preq: 2.0 cumulative grade-point ratio.

PRTM 380 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.

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.

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. Emphasis is on field studies, community service, and independent readings. May be repeated for a maximum of six credits, but only if different topics are covered. 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 395 PGM Seminar II 1(1,0) Current issues of interest in the golf industry. Special interest is placed on topics covered in the PGA/PGM Training Program Level II checkpoint. Preq: PRTM 295.

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 selection, and responsibilities of the student, department, and agency. To be taken Pass/Fail only. Preq: PRTM 206, 207 (or concurrent enrollment). 2.0 cumulative grade-point ratio, consent of instructor.

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 409 Methods of Recreation Research I 3(3,0) A study of the principal methods of recreation research, the application of descriptive statistics to recreation research, and the development of a research proposal. Preq: Senior standing in Parks, Recreation, and Tourism Management; 2.0 cumulative grade-point ratio.

PRTM 410, 410 Methods of Recreation Research II 3(3,0) Continuation of PRTM 409; includes supervised execution and reporting of results of research proposals 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, 412 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 413, 413 Recreation Therapy in Physical Rehabilitation 3(3,0) Examination of the potential psychological, physical, and sociological implications of disability to the individual and to the planning and directing of therapeutic recreation services. Preq: PRTM 311, three credit hours of human anatomy and physiology, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM (ED SP) 414, 414 Recreation and Leisure for Special Populations 3(3,0) Provides class participants with practical experience in designing recreation and leisure activities for special populations (e.g., handicapped, elderly). Preq: 2.0 cumulative grade-point ratio.

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 those 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 420 Therapeutic Recreation Trends and Issues 3(3,0) A broadened overview and treatment of the major trends and issues, 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 (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 443, 643 Resorts in National and International Tourism 3(3,0) A variety of resort types are studied with respect to their development, organization, visitor characteristics, and environmental consequences. A case-study approach is used. 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 tourism, 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.

PRTM 445, 645 Conference/Convention Planning and Management 3(3,0) Provides the opportunity to understand the problems and solutions to conference and convention planning and management from both the sponsoring organization’s and facility manager’s perspectives. Preq: 2.0 cumulative grade-point ratio.

PRTM 446, 646 Community Tourism Development 3(3,0) Provides a community-based perspective of organizational, planning, development, and operational needs for a successful tourism economy at the local level. Preq: PRTM 342, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 447, 647 Perspectives on International Travel 3(3,0) Studies 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. Preq: 2.0 cumulative grade-point ratio.

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. Preq: 2.0 cumulative grade-point ratio.
PERFORMING ARTS

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. Preq: 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. Preq: PRTM 254, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 455 Advanced Program Planning 3(3,0) A dvanced 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. Preq: PRTM 205, 2.0 cumulative grade-point ratio, consent of instructor.

PRTM 474, H 474 A dvanced Recreation Resources Management 3(3,0) A dvanced topics 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. Preq: 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. Coreq: CO-OP 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 repeated twice for a maximum of three credits. Preq: Senior standing in Parks, Recreation, and Tourism Management or consent of instructor.

PRTM 495 PGM Seminar III 1(1,0) Emphasizes topics covered in the PGM/PGM Training Program Level III checklist. Preq: PRTM 395.

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. Preq: Performing Arts major. Coreq: P A 103.

P A 103 Portfolio I 1(0,3) Develops discipline-specific portfolios that display creative design and contain samples of work that demonstrate integrated learning. To be taken Pass/Fail only. Coreq: P A 101.

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. Preq: P A 101, Sophomore standing.

P A 279 Performing Arts Practicum 1(0,3) Practical work on performing arts presentations including backstage technical work, multimedia support, and arts management. May be repeated for a maximum of four credits. Preq: P A 101.

P A 301 Performing Arts Seminar II 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. Preq: P A 201, Junior standing.

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. Preq: P A 101 and consent of instructor.

P A 399 Internship 1-3(0,3,9) 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. Preq: P A 279 and consent of Internship Program Coordinator.

P A 401 Senior Project Research 1(0,3) Performing Arts research project for the community. Interdisciplinary performing arts group generates a proposal for P A 402. May be repeated for a maximum of two credits. Preq: P A 301, Senior standing. Coreq: P A 403.

P A 402 Senior Project 3(0,9) Captstone course for Performing Arts majors. Preparation, execution, and assessment of a substantial group performing arts project for the community. Students, with faculty guidance, manage all aspects of the project. Preq: P A 401 with a B or better, Senior standing.

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. To be taken Pass/Fail only. Coreq: P A 401.

P A 499 Independent Studies 1-3(1-3,0) Supervised study for students with special interests in performing arts outside the scope of existing courses. May be repeated for a maximum of six credits. Preq: Consent of department chair.

PHILO S OPHY

Professors: W. A. M.aker, Chair; T. G. May, S. Silvers; Associate Professors: T. J. Oberdan, S. A. Sarris, K. C. Smith, D. E. Wueste; Assistant Professor: C. B. Starkey; Lecturers: D. L. Stegall, W. S. Watson.

PHIL 101, H 101 Introduction to Philosophic Problems 3(3,0) Discussion of representative philosophical questions which arise from human thought and action. Characteristic topics are values, knowledge, human nature, and society.

PHIL 102, H 102 Introduction to Logic 3(3,0) Introduction to methods of evaluating arguments. Simple valid argument forms are given which can be joined together to produce the logical form of virtually any argument. Informal fallacies may also be considered.

PHIL 103, H 103 Introduction to Ethics 3(3,0) Philosophical consideration of the nature of ethics, basic ethical issues, and problems and modes of ethical reasoning.

PHIL 105 Introductory Seminar in the Big Questions 3(3,0) Introductory seminar dealing with a single important philosophical question ("Who are we?" "What is the meaning of life?" "Are we free or determined?" etc.). Question is pursued throughout the semester with active student involvement. Questions may vary from semester to semester.

PHIL 201 Responsibilities in Leadership 3(3,0) Exploration of the responsibilities leaders have to those who are being led, to those whose behalf they are leading, to those affected by leadership decisions and actions. Focuses on the relationship between responsibility and authority and the role of judgment in the exercise of leadership.

PHIL 225 Art and Logic of Scientific Reasoning 3(3,0) Examinations of applications and misapplications of inductive reasoning and causal inference in scientific explanation and everyday discourse. Topics include correlation and confirmation, natural laws, natural kinds, scientific explanation, causal inference, and experimental methods.

PHIL 303 Philosophy of Religion 3(3,0) Critical consideration of the meaning and justification of religious beliefs. Representative topics are the nature and existence of God, religious knowledge, religious language, the problem of evil.

PHIL 304 Moral Philosophy 3(3,0) Study of moral problems, their origin in conflicts between duty and desire, and alternative solutions proposed by classical and contemporary writers.

PHIL (CHIN) 312 Philosophy in Ancient China 3(3,0) Study of the history of Chinese philosophy from fifth century B.C.E., including Confucianism, Daoism, M oism, legalism, Buddhism, Neo-Neo-Confucianism. Examination of Chinese philosophers' views and arguments on questions of life and death, history and society, education and personal cultivation. May not be used to satisfy general foreign language requirements.
PHIL (CHI N) 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. May 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 rationalism 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 17th, 18th, and 19th 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 which are not themselves 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 judgments 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, normativity and naturalism, and social determination of knowledge.

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 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 (NURS) 350 Technology and Philosophy in Nursing 3(3,0) See NURS 350.

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: “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 (REL) 393 Science and Religion 3(3,0) See REL 393.

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 406, 606 Continental Philosophy for Architects 3(3,0) Examines contemporary Continental philosophy over the course of the 20th century with the goal of offering the proper theoretical background to architecture students who use such theory in their studies and design work.

PHIL 425, 625 Philosophy of Psychology 3(3,0) Detailed examination of psychology as an autonomous science. Issues include explanation in psychology and cognitive neuroscience, psychology naturalized as a “special science” comparable to biology and geology, evolutionary psychology, philosophy and psychopathology, and moral issues in psychology. Preq: Nine hours of psychology or consent of instructor.
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. Many include such topics as astrophysics, energy, relativity, and weather, as well as visits to the planetarium.

PHYS 122, H 122 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: MTH SC 108.

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 200 Introductory Physics 4(3,2) Introduction to classical physics. Includes elements of mechanics, heat, electricity, and light. May not be substituted for PHYS 207 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: MTH SC 105 or equivalent.

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 122, 200, or 207. Coreq: MTH SC 105 or equivalent.

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 PHYS 221. Coreq: MTH SC 105 or equivalent.

PHYS 210 General Physics Laboratory I 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 Laboratory I 1(0,2) Covers such topics as electricity, magnetism, electromagnetic waves, optics, and modern physics. Coreq: PHYS 207. Coreq: PHYS 208.

PHYS 221, H 221 Physics with Calculus II 3(3,0) Continuation of PHYS 122. 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 208 or PHYS 221. Coreq: PHYS 122.

PHYS 222, H 222 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. Coreq: 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 dualism 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 262 Physics of Music 3(3,0) Elementary, nontechnical study of the relationship between the laws of physics and the production of music for the music student or layman who wishes to understand the physical principles of the art. Topics include mechanical and acoustical laws, harmonic analysis, musical scales, sound production in instruments, physiology of hearing, etc.

PHYS 320, H 320 Introduction to Research 1(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 321 Introduction to the Methods of Theoretical Physics 3(3,0) Survey of methods and techniques of problem-solving in physics. Emphasizes the application of mathematical techniques to the solution of problems of vectors, fields, and waves in mechanics, electromagnetism, and quantum physics. Coreq: PHYS 222 or consent of instructor.

PHYS 321 Methods of Theoretical Physics II 3(3,0) Continuation of PHYS 321 focused on introducing various mathematical notions widely used in upper level physics courses, such as differential equations, special functions and complex numbers, and complex functions. Coreq: PHYS 311 or consent of instructor.

PHYS 321, H 321, 621 Mechanics I 3(3,0) Statics, motions of particles and rigid bodies, vibratory motion, gravitation, properties of matter, flow of fluids. Coreq: PHYS 221.

PHYS 322, H 322, 622 Mechanics II 3(3,0) Dynamics of particles and rigid bodies, Lagrangian and Hamiltonian formulations, vibrations of strings, wave propagation. Coreq: PHYS 321 or consent of instructor.

PHYS 325, H 325, 625 Experimental Physics I 3(1,4) Introduction to experimental modern physics, measurement of fundamental constants, repetition of crucial experiments of modern physics (Stern-Gerlach, Zeeman effect, photoelectric effect, etc.). Coreq: PHYS 321 or consent of instructor.

PHYS 326, H 326, 626 Experimental Physics II 3(1,4) Continuation of PHYS 325.
PHYS 355, H355 Modern Physics 3(3,0) Study of the topics of modern physics, including relativity, atomic physics, quantum mechanics, condensed-matter physics, nuclear physics, and elementary particles. Preq: PHYS 222, MTHSC 206, or consent of instructor.

PHYS 356 Modern Physics Overview 1(1,0) Overview of topics in modern physics, including a short description of the structure of solids, nuclear physics, and particle physics. Preq: PHYS 222 or consent of instructor.

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 a review of elementary chemical and biological principles, physics of molecular machines, 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 large-scale 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, electrodynamics, special theory of relativity, and plasma physics. Preq: PHYS 441 or consent of instructor.

PHYS 445 Solid State Physics I 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 445 or consent of instructor.

PHYS 446, H446, 646 Solid State Physics II 3(3,0) Continuation of PHYS 445, including selected topics in solid-state physics such as optical properties, superconductivity, non-crystalline solids, dielectrics, ferroelectrics, and nanomaterials. Plasmons, polarons, and excitons are discussed. Brief introduction into methods of solid-state synthesis and characterization tools is presented. Preq: PHYS 445 or consent of instructor.

PHYS 452, H452, 652 Nuclear and Particle Physics 3(3,0) Study of our present knowledge concerning subatomic matter. Experimental results are stressed. Topics include particle spectra, detection techniques, Regge pole analysis, quark models, proton structure, nuclear structure, scattering and reactions.

PHYS 455, H455, 655 Quantum Physics I 3(3,0) Discussion of solution of the Schrodinger equation for free particles, the hydrogen atom, and the harmonic oscillator. Preq: PHYS 322 and 441, or consent of instructor.

PHYS 456, H456, 656 Quantum Physics II 3(3,0) Continuation of PHYS 455. A pplication of principles of quantum mechanics as developed in PHYS 455 to atomic, molecular, solid state, and nuclear systems. Preq: PHYS 455.

PHYS 465, H465, 665 Thermodynamics and Statistical Mechanics 3(3,0) Study of temperature development of the laws of thermodynamics and their application to thermodynamic systems. Introduction to low temperature physics is given. Preq: Six hours of physics beyond PHYS 222 or consent of instructor.

PHYS 475 Selected Topics 1-3(0-3,0-9) Comprehensive study of a topic of current interest in the field of physics. May be repeated for a maximum of six credits, but only if different topics are covered. Preq: Consent of instructor.

PLANT PATHOLOGY

Professors: N. D. Camper, B. A. Fortnum, A. P. Keinath, S. A. Lewis, S. B. Martin, J. D. Muelle, M. B. Riley, S. W. Scott; Associate Professor: S. N. Jeffers; Assistant Professor: G. Schnabel

PL PA 302, H302 Plant Pathology Research 1-3(0-3,9) Research experience in a plant pathology project for undergraduates who understand basic concepts of research. Students develop research objectives, procedures, and collect data. A written report includes interpretation of results. To be taken Pass/Fail only. Preq: Consent of instructor.

PL PA 310 Plant Diseases and People 2(3,3) An introduction to diseases caused by biotic and abiotic agents, symptom development, diagnosis, economic, and control and relationship of plant diseases to human welfare including the uses of genetic engineering to develop disease resistant crops. Preq: BIOL 104 or equivalent.
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 six hours credit from PO SC 310, 311, and 312 may be counted toward any degree. Preq: PO SC 101 and consent of instructor.

PO SC 311 Model United Nations 1(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 six hours credit from PO SC 310, 311, and 312 may be counted toward any degree. Preq: Consent of instructor.

PO SC 312 State Student Legislature 1(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 six hours credit from PO SC 310, 311, and 312 may be counted toward any degree. Preq: Consent of instructor.

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. Preq: 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. Laboratory 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. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC (LANG) 350 Seminar in International News 3(3,0) See LANG 350.

PO SC (E L E, PSYCH, SOC) 356 Social Science of Entrepreneurship 3(3,0) See SOC 356.

PO SC 361, H 361 International Politics in Crisis 3(3,0) Factors contributing to the prevalence of tension and violence in the contemporary global arena are identified and analyzed, with particular emphasis on political, economic, and military roots and manifestations of conflict. Preq: 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 the society of nations. Explains the formal institutions, decision-making processes, and multilateral capacities of international governmental and nongovernmental organizations. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 363 United States Foreign Policy 3(3,0) A merican foreign policy in historical perspective, with particular emphasis on decision-making processes, contemporary American capabilities and challenges, and analysis of key issues. Preq: 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. Preq: 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. Preq: PO SC 102, 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. Preq: PO SC 102 or 104, Junior standing, or consent of instructor.

PO SC 375, H 375 European Integration 3(3,0) Survey course analyzing institutional cooperation between European countries with a focus on the European community. Preq: 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. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC (SPAN) 382 Spanish Foreign Language News 1(1,0) Weekly discussions of Spanish-language news articles in the foreign press with an emphasis on politics and the connections among political, economic, social, and cultural trends. Emphasis on Spanish vocabulary as well as cross-cultural contrasts with the United States. May be repeated for a maximum of six credits. Preq: SPAN N 202 or equivalent or consent of instructor.

PO SC (FR) 383 French Foreign Language News 1(1,0) Weekly discussions of French-language news articles in the foreign press with an emphasis on politics and the connections among political, social, economic, and cultural trends. Emphasis on French vocabulary as well as cross-cultural contrasts with the United States. May be repeated for a maximum of three credits. Preq: FR 202 or equivalent or consent of instructor.

PO SC 389 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. Preq: Consent of instructor.

PO SC H 395 Junior Honors Research Seminar 1(1,0) Readings and discussion to prepare for the Junior Honors Research Paper and the Senior Thesis. Preq: Junior standing, membership in Calhoun Honors College, consent of instructor.

PO SC H 396 Junior Honors Research 1(1,0) Readings and research in conjunction with an approved political science course at the 300 or 400 level. Preq: 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. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 405 The American Presidency 3(3,0) Examination of the evolution of the presidency, the powers of the chief executive, the public presidency, executive branch organization and staffing, decision making, and the implementation of public policy. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 407 Religion and American Politics 3(3,0) Examination of 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. Preq: PO SC 101, Junior standing, or consent of instructor.

PO SC 409, 609 Directed Study in American Politics 1-3(1-3,0) Supervised reading and/or research in selected areas of American government. May be repeated for a maximum of six credits. Preq: Consent of instructor.

PO SC 410 Directed Study in International Politics 1-3(1-3,0) Supervised readings and/or research in selected areas of international and comparative politics. Preq: 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. Preq: 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. Preq: 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. Preq: 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.
Courses of Instruction

PTC 303 Textile Chemistry 3(3,0) Study of the properties and reactions of aliphatic and aromatic organic compounds. Emphasis is placed on mechanistic interpretations and the development of synthetic schemes leading to polyfunctional compounds of the types encountered in the textile industry. Coreq: C H102. C Coreq: MTH 206 or 207.

PTC 304 Textile Chemistry 3(3,0) Fundamental principles of physical chemistry with emphasis on areas frequently encountered in the textile industry including thermodynamics, kinetics, and solution properties. These concepts are applied to the study of organic compounds and organic reaction mechanisms. Coreq: PTC 303.

PTC 305 Textile Chemistry Laboratory 1(0,3) Introduction to techniques used in synthesis and characterization of organic compounds. Coreq: PTC 303.

PTC 306 Textile Chemistry Laboratory 1(0,3) Techniques used in the measurement of the physicochemical properties of polymers and textile chemicals. Coreq: PTC 304.

PTC 405 Principles of Textile Printing 3(2,3) Development of modern textile printing systems is studied. Also examines colloidal requirements of colorants, thickener compositions, rheology of printing pastes, and various physical requirements necessary for a successful printing system in a modern plant. Coreq: Consent of instructor.

PTC 406 Textile Finishing—Theory and Practice 3(2,3) Study of the application of chemicals to textile substrates and how they affect the substrate's physical and chemical properties. Emphasizes the theories of chemical modification of textiles as well as the technology of finishing.

PTC 415, H 415, 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. Coreq: CH 201 and 330 or 224, PTC 304, or consent of instructor.

PTC 416, 616 Chemical Preparation of Textiles 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.

PTC 417 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: PTC 415.

PTC 457, H 457, 657 Dyeing and Finishing I 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 chemical principles behind equipment used to effect transfer of these chemicals onto the textile substrate.

PTC 458, H 458, 658 Dyeing and Finishing II 3(3,0) Kinetics and equilibria of dyeing processes. The use of conductivity, diffusion, and other methods useful for measuring absorption of isotherms and dyeing rates and the general thermodynamic relationships applicable to dyeing operations. Fiber properties such as zeta potential, dye sites, relative amorphous area available are included.

PTC 459 Dyeing and Finishing I Laboratory 1(0,3) Introduces students to common dyeing and printing methods and to some of the machinery necessary to carry out dyeing operations. Coreq: PTC 457.

PTC 460 Dyeing and Finishing II Laboratory 1(0,3) Covers finishing in addition to dyeing operations and their instrumental control. Coreq: PTC 458.

PORTUGUESE

PORT 101 Elementary Portuguese 4(3,1) Introductory course stressing speaking, listening, and writing. A test is given to the sound system of Portuguese to develop basic communication skills.

PORT 102 Elementary Portuguese 4(3,1) Continuation of PORT 101. Coreq: PORT 101 or consent of instructor.

PORT 201 Intermediate Portuguese 3(3,0) Intermediate course with more emphasis on communication skills and structure. Reading and writing practice in and outside the classroom, with special attention to idiomatic usage. Introduction to perspectives through readings and cultural activities. Coreq: PORT 102 or consent of instructor.

PORT 202 Intermediate Portuguese 3(3,0) Continuation of PORT 201. Coreq: PORT 201 or consent of instructor.

PSYCHOLOGY


PSYCH 201, H 201 Introduction to Psychology 3(3,0) Introduction to the study of behavior. A nalysis 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 206 Human Sexual Behavior 3(3,0) The subject of sexual behavior is approached from the psychological, behavioral, and cultural points of view. Evolutionary, historical, and cross-cultural perspectives are considered.
PSYCH 344 Psychology of Adolescence 3(3,0)
A broad survey of theory and research on the developmental processes of adolescence, with an emphasis on personality development, social behavior, and the role of the family. Preq: PSYCH 201.

PSYCH 345 A guide to Adolescence 3(3,0)
A special consideration of the major psychological processes of adolescence as they relate to individual behavior and adaptation. Includes the influences of social and environmental factors, socialization, and the formation of identity. Preq: PSYCH 201.

PSYCH 350 Social Psychology 3(3,0)
An introduction to the study of social psychology, including topics such as social cognition, social influence, and social identity. Preq: PSYCH 201.

PSYCH 352 Social Psychology of Institutions 3(3,0)
An overview of the role of institutions in social behavior, including topics such as social norms, social roles, and social structures. Preq: PSYCH 201.

PSYCH 355 Environmental Psychology 3(3,0)
The study of the relationship between human behavior and the physical environment. Topics include perception, adaptation, and the effects of environmental factors on behavior. Preq: PSYCH 201.

PSYCH 356 Social Psychology of Entrepreneurship 3(3,0)
An analysis of the role of social psychology in entrepreneurship, including topics such as social networks, social capital, and social influence. Preq: PSYCH 201.

PSYCH 369 Organizational Psychology 3(3,0)
An analysis of individual behavior in organizations, including topics such as motivation, leadership, and organizational culture. Preq: PSYCH 201.

PSYCH 370 Personality 3(3,0) A historical and contemporary view of individual differences in behavior, affect, health, coping, and motivation. Covers topics such as personality development and structure, personality assessment, and applications of personality psychology. Preq: PSYCH 201.

PSYCH 375 Psychology of Substance Abuse 3(3,0)
The study of the psychological approaches to treatment of substance abuse. Topics include behavioral, social learning, and family systems theories as applied to treating substance abuse. Emphasis is on empirical approaches to evaluating methods of treatment and matching clients to treatments. Preq: PSYCH 201.

PSYCH 385 The Social Construction of Madness 3(3,0)
A study of the construction of mental illness and the ways in which psychosis has been explained, portrayed, and treated. Preq: PSYCH 201.

PSYCH 390 Honors Seminar in Psychology 3(3,0) A 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.

PSYCH 408 Women and Psychology 3(3,0)
An exploration of the psychological issues that concern women. Emphasis is on empirical research on topics such as gender, sexual differentiation, motivation, and psychological disorders. Preq: PSYCH 201.

PSYCH 415 Systems and Theories of Psychology 3(3,0)
A study of the development of psychology, particularly during the past 100 years. Emphasis is on the individuals and the perspectives that have influenced psychological theory and research. Preq: PSYCH 201.

PSYCH 422, 422 Sensation and Perception 3(3,0) A study of the principles of measurement and sensory processes related to vision, hearing, and the senses. Preq: PSYCH 201.

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.

PSYCH 426, 426 Advanced Physiological Psychology 3(3,0) A study of the physiological basis of behavior with emphasis on the nervous system and endocrinology. Topics may vary. May not be repeated for credit. Preq: PSYCH 201.

PSYCH 435 Human Factors Psychology 3(3,0) A study of the factors that influence human behavior in the workplace, with an emphasis on the design of work environments. Preq: PSYCH 201.

PSYCH 442, 442 Sensation and Perception 3(3,0) A study of the principles of measurement and sensory processes related to vision, hearing, and the senses. Preq: PSYCH 309.

PSYCH 443 Infant and Child Development 3(3,0) A study of the processes of development from conception to age 12. Major theories and research findings are covered. Preq: PSYCH 201.

PSYCH 444 Psychology of Human Relationships 3(3,0) A study of the psychological processes of human relationships, with an emphasis on the roles of communication, conflict, and cooperation. Preq: PSYCH 201.

PSYCH 454 Psychology of Human Relationships 3(3,0) A study of the psychological processes of human relationships, with an emphasis on the roles of communication, conflict, and cooperation. Preq: PSYCH 201.

PSYCH 455, 455 Group Dynamics 3(3,0) A study of the psychological processes of human relationships, with an emphasis on the roles of communication, conflict, and cooperation. Preq: PSYCH 201.

PSYCH 462, 462 Psychology and Culture 3(3,0) A study of the psychological processes of human relationships, with an emphasis on the roles of communication, conflict, and cooperation. Preq: PSYCH 201.
PSYCH 483, H 483, 683 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. Prereq: PSYCH 201 with a C or better and one 300-level psychology 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. Prereq: PSYCH 370 or 483 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. Prereq: PSYCH 201 with a C or better and one 300-level psychology course, or consent of instructor.

PSYCH H 490 Senior Division Honors Research I 2-4(2-4,0) Preparation and defense of a research proposal. Proposed project should be empirical, historical, or theoretical in nature. Prereq: Junior standing, consent of department chair.

PSYCH H 491 Senior Division Honors Research II 2-4(2-4,0) Completion of the proposed research project resulting in a written thesis. Prereq: PSYCH H 490.

PSYCH 492 Senior Laboratory in Psychology 1(0,2) Students complete an integrative review of topics in psychology in the context of producing a reflective portfolio. Prereq: 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. Prereq: PSYCH 483 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. Prereq: PSYCH 352 or 364 or 454; consent of instructor.

PSYCH 496 Laboratory in Psychology 1-3(0,2-6) Laboratory in a variety of topics in psychology such as human factors psychology and psychological testing. May be repeated for a maximum of three credits. Prereq: PSYCH 201 with a C or better; PSYCH 309, 310; or consent of instructor.

PSYCH 497, H 497 Directed Studies in Psychology 1-4(0,2-6) 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 Prereq: Six credits in psychology, a course in research methods, and consent of the instructor.