

NSCI 4371–NURS 3532

receive credit for both NSCI 2372 and BIOL 1406. Fall, spring. Formerly NSCI 202.

NSCI 4371 The Process of Science. (3 3 0) Meaning, method development and implications of science in historical context as revealed in lives and works of major scientist. Formerly NSCI 471.

NURS—Nursing

(Offered through the Division of Nursing.)

NURS 1322 Nutrition. [BIOL 1322] (3 3 0) Principles of normal nutrition, major food groups, sources, availability and costs. Elective for non-nursing majors. Formerly NURS 207.

NURS 1371 Theories and Concepts of Professional Nursing. (3 3 0) Introduction to philosophical, theoretical and historical perspectives on the practice of professional nursing. Theories and concepts integral to the practice of professional nursing are explored to prepare students for nursing roles of provider of care, designer/manager/coordinator of care and as a member of the profession. Formerly NURS 111.

NURS 2271 Medication Administration Techniques. (2 1 2) Prerequisite: 1371, MATH 1314, CHEM 1411 or 1405/1405L. Techniques of safe medication administration including calculations, terminology, route/site selection and manipulation of peripheral-intravenous delivery systems. Laboratory includes practice of techniques. Students are required to pass medication calculations examination to pass course. Formerly NURS 241.

NURS 2374 Pharmacology for Professional Nursing. (3 3 0) Prerequisite: 2271, 2375, 2471. Nursing knowledge required for understanding concepts of pharmacology, pharmacokinetics, pharmacotherapeutics and pharmacodynamics with patients across the life span. Students are required to pass a safe dosage calculation exam to pass the course. Focus is on the role of the nurse as the provider of care. Formerly NURS 242.

NURS 2375 Health Assessment Throughout the Life Span. (3 2 2) Prerequisite: CHEM 1411 or 1405/1405L, BIOL 2401. Nursing assessment of the physical, cultural, psychological, socioeconomic, nutritional and spiritual components of the individual throughout the life span using Gordon's Functional Health Patterns. Formerly NURS 250.

NURS 2471 Foundations to Professional Nursing Practice I. (4 1 9) Prerequisite: 1371, BIOL 2401/2401L, CHEM 1411 or 1405/1011L, PSYC 2301. Nursing knowledge required for therapeutic communication, non-invasive nursing skills, and health-promotion strategies with patients and families across the life span, from diverse cultures and in a variety of settings. Focuses on the role of the nurse as a provider of care to individuals and families. Formerly NURS 221.

NURS 2472 Foundations to Professional Nursing Practice II. (4 1 9) Prerequisite: 2471, PSYC 2314, SOCI 1301, BIOL 2402/2402L. Expands on NURS 221. Nursing knowledge required for performance of nursing skills, including invasive techniques with patients across the life span. Focuses on role of the nurse as a provider of care. Formerly NURS 222.

NURS 3094 Independent Study. (1-4 0 0) Topic and mode of study are agreed upon by student and faculty. Formerly NURS 398.

NURS 3304 Elementary Biostatistics in Health Care Research. (3 3 0) Prerequisite: MATH 1314 or 1324. Emphasis on basic descriptive and inferential methods used in health sciences. Introduction to statistical package for social sciences (SPSS). Formerly NURS 304.

NURS 3306 Concepts of Emergency Nursing. (3 2 2) Prerequisite: 2472, 2374, 2375. Elective focuses on individuals and families experiencing emergency situations of physiological or psychological origin. Emphasis on adaptation theory and use of the nursing process. Formerly NURS 306.

NURS 3310 Pathophysiology. (3 3 0) Prerequisite: BIOL 2420/2420L or 2572, NURS 2271, 2472, 2271, 2374. Human physiologic responses to pathological conditions across the life span. Leading causes of morbidity and mortality in the United States are highlighted. Focus on role of the nurse as provider of care. Formerly NURS 310.

NURS 3325 Integration into Professional Nursing. (3 3 0) Prerequisite: RN licensure. Discussion of philosophical, theoretical and historical perspectives in the practice of professional nursing. Students will identify their desired individual areas of professional nursing practice and directions for BSN study. Formerly NURS 325.

NURS 3335 Clinical Reasoning for Professional Nurses. (3 1 6) Prerequisite: RN licensure. Gordon's Functional Health Patterns, along with various screening and data-gathering tools will be used to collect and organize patient information. Students will develop clinical reasoning skills by utilizing patient information to formulate nursing diagnoses and interventions. Formerly NURS 335.

NURS 3345 Pharmacotherapeutics Applied to Pathophysiology. (3 3 0) Prerequisite: RN licensure. Effects of pharmacotherapeutics in relation to major pathophysiologies/psychopathologies across the lifespan. Includes nursing knowledge of pharmacokinetics/dynamics/genetics for quality patient care as well as food/drug, drug/drug interactions and the requisite patient teaching. Formerly NURS 345.

NURS 3355 Cultural Competence for Health Promotion. (3 3 0) Prerequisite: RN licensure. Improvement of cultural competence for RNs in providing quality care to diverse patient populations. Various cultures (with particular emphasis on local/rural cultures) are studied as to their health care beliefs and practices regarding health promotion. *Healthy People 2010* is used as the framework of study. Formerly NURS 355.

NURS 3360 Research in Nursing. (3 3 0) Introduction to the research process as related to nursing. Formerly NURS 360.

NURS 3431 Professional Nursing III: Adult/Gerian Acute Care and Mental Health. (4 4 0) Prerequisite: BIOL 2420/2420L or 2572, NURS 2271, 2374, 2471, 2472. Nursing knowledge required for care of adults and gerians with physical and mental conditions necessitating acute care. Focus on role of the nurse as provider, designer and coordinator of care. Formerly NURS 331.

NURS 3451 Professional Nursing IV: Maternal Child Acute Care and Mental Health. (4 4 0) Prerequisite: 3310, 3431, 3532. Nursing knowledge required for perinatal care and care of children in acute and mental-health settings. Focus on role of the nurse as provider, designer and coordinator. Formerly NURS 351.

NURS 3532 Professional Practice III: Adult/Gerian Acute Care and Mental Health. (5 0 15) Prerequisite: 2271, 2374,

- 2471, 2472. Applies concepts from NURS 3431 to clinical practice. Students provide nursing care for adults and gerians with physiologic and mental-health conditions in acute-care settings. Focus on role of the nurse as provider, designer and coordinator of care in an acute-care clinical setting. Formerly NURS 332.
- NURS 3552 Professional Practice IV: Maternal Child Acute Care and Mental Health. (5 0 15)** Prerequisite: 3310, 3431, 3532. Applies concepts from NURS 3451 to clinical practice. Students provide nursing care to child-bearing women, infants, children and adolescents in acute-care and mental-health facilities. Focus on role of the nurse as provider, designer and coordinator of care in an acute care clinical setting. Formerly NURS 352.
- NURS 4321 Professional Nursing with Groups/Populations. (3 3 0)** Prerequisite: 3310, 3431, 3451, 3532, 3552. Nursing knowledge required for providing, designing, managing and coordinating community-based care for groups, populations and communities. Incorporates concepts of public and community health. Formerly NURS 421.
- NURS 4322 Professional Practice with Groups/Populations. (3 0 9)** Prerequisite: 3310, 3431, 3451, 3532, 3552. Concurrent enrollment in 4321. Applies concepts from NURS 4321 in the community setting. Nursing practice with groups, communities and populations. Utilizes concepts of public and community health in clinical practice. Focus on role of the nurse as provider, designer/coordinator and manager of care and as a member of the profession. Formerly NURS 422.
- NURS 4331 Professional Nursing in Complex Situations. (3 3 0)** Prerequisite: 3310, 3431, 3451, 3532, 3552. Nursing knowledge required for care of patients across the life span requiring complex nursing care, including concepts of families in crisis. Focus on role of the nurse as provider, designer, coordinator of care, and develops role of the manager of care. Formerly NURS 431.
- NURS 4332 Professional Practice in Complex Situations. (3 0 9)** Prerequisite: 3310, 3431, 3451, 3532, 3552. Concurrent enrollment in NURS 4331. Applies concepts from NURS 4331 to clinical practice. Students provide nursing care for patients across the life span requiring highly technological and other complex care. Focus on role of the nurse as provider, designer, coordinator of complex and novice manager of care in critical care and other settings. Formerly NURS 432.
- NURS 4335 Issues in Health Care Delivery. (3 3 0)** Prerequisite: all required junior-level courses, 4625 and RN licensure. Decision making for ethical dilemmas are examined, as well as legal, social, economic and political policies surrounding the current health care delivery system. Formerly NURS 435.
- NURS 4341 Leadership and Management in Professional Nursing Practice. (3 3 0)** Prerequisite: 4321, 4322, 4331, 4332. Must be taken with NURS 4693. Emphasizes role of the professional nurse as leader and manager of nursing care. Integrates application of previously acquired knowledge and skill with concepts of leadership and management in health-care delivery. Formerly NURS 441.
- NURS 4345 Professional Nursing Leadership/Management. (3 3 0)** Prerequisite: all junior-level nursing courses, 4625 and RN licensure. Management skills and the art of leadership are addressed and include organizational culture, tools for change, conflict management, multidisciplinary collaboration, scheduling/staffing and legal liability, as well as other principles of leadership/management. Formerly NURS 445.
- NURS 4351 Preparation for Professional Nursing Practice. (3 3 0)** Prerequisite: 4321, 4322, 4331, 4332. Emphasis on scope of professional nursing practice and nursing jurisprudence. Prepares students for entry into practice. Students must pass a comprehensive, standardized examination to pass this course and to meet requirements for graduation. Formerly NURS 451.
- NURS 4355 Principles of Managed Health Care. (3 3 0)** Prerequisite: 2472 or consent of instructor. Comprehensive overview of managed care practices in the United States and the impact these practices have on the health care delivery system; focuses on issues affecting results of managed care and explores implications of managed care for nurses and other health care providers. Formerly NURS 455.
- NURS 4365 Practice of Professional Nursing. (3 0 9)** Prerequisite: all junior-level nursing courses, 4625 and RN licensure. Capstone course in which all concepts learned throughout the program are applied in a clinical setting of the student's choice. Students will synthesize knowledge from prior course. Formerly NURS 465.
- NURS 4370 Standardized Assessment: Early Parent-Child Interactions. (3 3 0)** Reliable, valid observation and assessment of care-giver interactions with their young child (birth to three years) for the purpose of determining quality of communication patterns and dyad's relationship. Specific application on child abuse-neglect. Reliability certification from University of Washington in NCAST Feeding and Teaching Scales is offered. Formerly NURS 470.
- NURS 4371 Early Parent-Child Dyad Intervention. (3 3 0)** Prerequisite: NCAST assessment training. Incorporation of NCAST assessments scales and various concepts and other tools assessing nurturing capabilities, child sleep-wake cycles, prenatal mental health, measurement of home environment, and parental life difficulties and networking skills. Intervention methodology emphasized to enhance early parent-child dyad relationship and healthy outcomes, including children with special needs. Formerly NURS 471.
- NURS 4399 Honors. (3 0 0)** Advanced nursing experiences for the self-directed student with a GPA over 3.0. Course content is negotiable by student and selected faculty. Formerly NURS 499.
- NURS 4625 Nursing Decisions for Populations. (6 3 9)** Prerequisite: 3304, 3325, 3335, 3345 and RN licensure. Epidemiological, community health and public health concepts are presented as they relate to groups and populations. Health related issues for rural, local populations are emphasized. Healthy People 2010 is used as the basis for materials presented. Formerly NURS 425.
- NURS 4693 Clinical Internship for Professional Nursing Practice. (6 0 18)** Prerequisite: 4321, 4322, 4331, 4332. Clinical practice experience in selected health-care settings. Emphasis on acute-care settings. Focus on role of the nurse as provider, designer and manager of care for individuals, families and groups of patients. Formerly NURS 460.
- NURS 5355 Principles of Managed Health Care. (3 3 0)** Comprehensive overview of managed care practices in the United States and the impact these practices have on the health care delivery system; focuses on issues affecting results of managed care and explores implications of

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- managed care for nurses and other health care providers. Formerly NURS 5455.
- NURS 5370 Standardized Assessment: Early Parent-Child Interactions. (3 3 0)** Reliable, valid observation and assessment of care-giver interactions with their young child (birth to three years) for the purpose of determining quality of communication patterns and dyad's relationship. Specific application on child abuse-neglect. Reliability certification from University of Washington in NCAST Feeding and Teaching Scales is offered. Formerly NURS 5470.
- NURS 5371 Early Parent-Child Dyad Intervention. (3 3 0)** Prerequisite: NCAST assessment training. Incorporation of NCAST assessments scales and various concepts and other tools assessing nurturing capabilities, child sleep-wake cycles, prenatal mental health, measurement of home environment, and parental life difficulties and networking skills. Intervention methodology emphasized to enhance early parent-child dyad relationship and healthy outcomes, including children with special needs. Formerly NURS 5471.
- NURS 6094 Independent Study. (1-6 0 0)** Topic and mode of study are agreed on by student and faculty. Formerly NURS 5598.
- NURS 6301 Thesis. (3 0 0)** Formerly NURS 5501.
- NURS 6302 Thesis. (3 0 0)** Student will complete a research study. Enrollment must be repeated until research is completed. Formerly NURS 5502.
- NURS 6303 Theories for Nursing. (3 3 0)** Introduces theoretical foundations for scholarly inquiry about nursing's unique knowledge base. Orem's Self-Care Deficit Nursing Theory introduced for use throughout the M.S.N. program. Skill development in written and oral communication is emphasized. Formerly NURS 5503.
- NURS 6306 Advanced Analysis of Issues in Nursing. (3 3 0)** Forum for students to analyze significant health care issues impacting nursing, the individual, and the family in both rural and urban communities. Formerly NURS 5506.
- NURS 6307 Nursing Administration in Health Care Organizations. (3 3 0)** Introduction to theories, concepts, techniques, functions and methods of management as they relate to health care administration, with an emphasis on nursing administration. Issues and trends affecting planning and organizational processes in health care administration are explored. Organizational theory and behavior is emphasized. Formerly NURS 5507.
- NURS 6308 Leadership and Resource Management in Nursing. (3 3 0)** Nurse executive role in financial and information management, strategic planning and marketing, management of human resources, quality assurance and risk management initiatives for health care organizations. Conflict resolution, negotiation strategies and the decision-making process are explored. Formerly NURS 5508.
- NURS 6309 Practicum in Administration. (3 0 6)** Prerequisite: 6308 or concurrent enrollment. Participant observation in administrative process in clinical settings; independent study of a selected aspect of patient care, staff development and/or delivery of health care. Evaluation of supervisory practices. Formerly NURS 5509.
- NURS 6311 Curriculum and Instruction Design in Schools of Nursing. (3 3 0)** Historical legacies in nursing education and their influence on curriculum designs. Principles from higher education and nursing education for design of instruction for nursing. Formerly NURS 5511.
- NURS 6312 Evaluation in Nursing Education and Practice. (3 3 0)** Evaluation models appropriate for didactic and clinical settings—both faculty and student performance. Models for curriculum evaluation and faculty role related to implementation of a program evaluation plan. Formerly NURS 5512.
- NURS 6315 Advanced Assessment for Nurse Practitioners. (3 2 2)** Systematic assessment of clients in the primary health care system. Required for advanced practice role specialization. Formerly NURS 5515.
- NURS 6316 Issues: Nurse Practitioner Role Development. (3 3 0)** Forum for nurse practitioner students to analyze issues that are operative in development of the advanced practice-family nurse practitioner role. Formerly NURS 5516.
- NURS 6317 Nursing Research. (3 2 2)** Prerequisite: 5503. Detailed study of logic, methods and techniques of the research process. Includes critical evaluation of published research and opportunities to participate in faculty or community research projects. Formerly NURS 5517.
- NURS 6318 Nursing Populations and Settings. (3 3 0)** Prerequisite: 6303 and 6317. Defining characteristics of nursing populations and settings. Students will use principles of epidemiology, public health, computer-generated data sets, and community diagnosis in describing populations and settings. Self-Care Deficit Nursing Theory for multi-person units will be emphasized. Formerly NURS 5518.
- NURS 6320 Pathophysiology. (3 3 0)** Scientific concepts of the disease processes and human responses to illness. Formerly NURS 5520.
- NURS 6330 Family Nurse Practitioner I. (3 3 0)** Prerequisite: 6303, 6315, 6320, 6384. Family nurse practitioner's role and functions in care of maternal and infant clients with emphasis on theoretical foundations, legal issues and critical skills for role implementation. Formerly NURS 5530.
- NURS 6331 Family Nurse Practitioner II. (3 3 0)** Prerequisite: 6303, 6315, 6320, 6384. Family nurse practitioner's role and functions in care of pediatric and adolescent clients with emphasis on theoretical foundations, legal issues and critical skills for role implementation. Formerly NURS 5531.
- NURS 6332 Family Nurse Practitioner III. (3 3 0)** Prerequisite: 6303, 6315, 6320, 6384. Family nurse practitioner's role and functions in care of adult and geriatric clients with emphasis on theoretical foundations, legal issues and critical skills for role implementation. Formerly NURS 5532.
- NURS 6384 Pharmacotherapeutics. (3 3 0)** Drug indication and prescription, therapeutic administration and surveillance will be emphasized from a pharmacotherapeutic perspective. Formerly NURS 5584.
- NURS 6399 Practicum in Teaching of Nursing. (3 0 6)** Prerequisite: 6312 or concurrent enrollment. Observation, participation and practice in teaching nursing. Seminars enable students to discuss problems related to teaching strategies and evaluation of nursing students in the clinical laboratory. Formerly NURS 5513.
- NURS 6687 Nurse Practitioner Practicum/Seminar: Maternal-Newborn. (6 0 0)** Prerequisite: 6330. Guided practice with a qualified preceptor in the role of nurse practitioner in maternal-newborn settings. Focus on pregnancy planning, antenatal and postpartum care; 180

hours includes practicum and on-campus seminar. Must be taken within one year from 6330. Formerly NURS 5587.

- NURS 6688 Nurse Practitioner Practicum/Seminar: Pediatric-Adolescent. (6 0 0)** Prerequisite: 6331. Guided practice with a qualified preceptor in the role of nurse practitioner in child-adolescent settings. Focus on health maintenance and promotion and health restoration of minor illnesses; 180 hours includes practicum and on-campus seminar. Must be taken within one year from 6331. Formerly NURS 5588.
- NURS 6689 Nurse Practitioner Practicum/Seminar: Adult-Gerian. (6 0 0)** Prerequisite: 6332. Guided practice with qualified preceptor in role of nurse practitioner in adult-gerian settings. Focus on health maintenance and promotion and health restoration of chronic conditions and minor illnesses; 180 hours includes practicum and on-campus seminar. Must be taken within one year from 6332. Formerly NURS 5589.

PHED—Physical Education

(Offered through the Department of Sports and Exercise Sciences.)

- PHED 1101 Aerobic Dancing. (1 0 2)** Series of easy-to-learn dances to increase cardiovascular fitness and muscle tone. Formerly SES 146.
- PHED 1102 Bowling. (1 0 2)** History, rules and fundamentals to develop recreational skills in bowling. Formerly SES 151.
- PHED 1103 Advanced Bowling. (Inactive.)**
- PHED 1106 Golf. (1 0 2)** History, rules and fundamentals to develop recreational skills in golf. Formerly SES 152.
- PHED 1107 Advanced Golf. (1 0 2)** Prerequisite: permission of department. Further development of golf skills and experience in match and stroke play. Formerly SES 171.
- PHED 1109 Karate. (1 0 2)** Development of basic skills of self-defense as related to the sport of Karate. Formerly SES 125.
- PHED 1110 Advanced Karate. (1 0 2)** Prerequisite: 1109 or permission of instructor. Further development of skills of self-defense in the sport of Karate. Formerly SES 126.
- PHED 1111 Lifetime Wellness. (1 0 2)** Eclectic selection of lifelong exercise and leisure activities which will enhance the quality of life. Possible activities include hiking, weight training, bowling, golf, archery, tennis and walking/jogging. The relationship of each activity to physical and mental well-being will be emphasized. Formerly SES 101.
- PHED 1115 Racquetball. (1 0 2)** History, rules and fundamentals to develop recreational skills in racquetball. Formerly SES 160.
- PHED 1116 Recreational Activities. (1 0 2)** Seasonal recreational activities. Formerly SES 199.
- PHED 1117 Recreational Softball. (1 0 2)** History, rules and fundamentals to develop recreational skills in softball. Formerly SES 117.
- PHED 1118 Recreational Basketball. (1 0 2)** History, rules and fundamentals to develop recreational skills in basketball. Formerly SES 113.
- PHED 1119 Recreational Volleyball. (1 0 2)** History, rules and fundamentals to develop recreational skills in volleyball. Formerly SES 116.
- PHED 1120 Riflery. (Inactive.)**
- PHED 1121 Scuba Diving. (Inactive.)**
- PHED 1125 Beginning Swimming. (Inactive.)**
- PHED 1126 Swim for Fitness. (Inactive.)**
- PHED 1127 Tennis. (1 0 2)** History, rules and fundamentals to develop recreational skills in tennis. Formerly SES 154.
- PHED 1128 Advanced Tennis. (1 0 2)** Prerequisite: permission of department. Further development of tennis skills and experience in singles and doubles competition. Formerly SES 173.
- PHED 1129 Varsity Athletics. (1 0 2)** Prerequisite: Permission of department head. Varsity intercollegiate participation. Must be currently active in either a (1) NCAA sport, (2) spirit squad including cheerleaders and (3) student athletic trainers. May count once toward degree requirement. Formerly SES 190.
- PHED 1130 Walking for Fitness and Fun. (1 0 2)** Designed to examine fitness walking (the most popular form of exercise in America) as an activity to improve health and fitness. Adopting exercise (walking) into a lifetime behavior is the main goal of this course. Formerly SES 118.
- PHED 1131 Water Aerobics. (Inactive.)**
- PHED 1135 Weight Training. (1 0 2)** History and fundamentals of scientific weight training. Formerly SES 102.
- PHED 1140 Western Dance. (1 0 2)** Basic steps, formations, terminology and fundamentals to develop recreational skills in western dance. Formerly SES 155.
- PHED 1141 Advanced Western Dance. (Inactive.)**
- PHED 1178 Horsemanship. (1 0 2)** Review of fundamental horse safety and horsemanship to include handling, grooming, equipping, riding western and English, and the relationship of riding to physical and mental well-being. May be used to meet one hour of sports and exercise sciences activity. Same as ANSC 1178. Formerly SES 158.
- PHED 1274 Western Horsemanship. (2 0 4)** Prerequisite: ANSC/PHED 1178 or consent of instructor. Development of balanced seat, hands and posture at natural gaits of the western stock horse. Emphasis on control of the horse through use of primary and secondary aids. Welfare and communication considerations for effective horse-human relationships. The relationship of riding to physical and mental well-being. May be used to meet one hour of PHED activity. Same as ANSC 1274. Formerly SES 164.
- PHED 1275 English Riding and Jumping I. (2 0 4)** Prerequisite: Consent of instructor. Introduction to principles of forward-seat riding with emphasis on control and use of primary and secondary aids. Use of caveletti and introduction to jumping. Safety considerations for jumping. May be used to meet one hour of required sports and exercise sciences activity. Same as ANSC 165. Formerly SES 165.

PHIL—Philosophy

(Offered through the Department of English and Modern Languages.)

- PHIL 1301 Introduction to Philosophy. (3 3 0)** Appraisal of the meaning and method of philosophy and its relationship to man and his thinking. Fall, spring. Formerly PHIL 101.
- PHIL 2303 Logic. (3 3 0)** Introduction to logic with emphasis on the nature of the rational process, types of reasoning and fallacies; attempt to develop skills in sound reasoning. Fall. Formerly PHIL 203.
- PHIL 2374 Ethical Theory. (3 3 0)** A detailed reading of selected texts that philosophically address the question of what it means to lead an examined life. Fall. Formerly PHIL 204.

PHIL 3301–PHYS 4380

- PHIL 3301 Ancient and Medieval Philosophy. (3 3 0)** History of the development of western thought during ancient and medieval periods. Fall. Formerly PHIL 301.
- PHIL 3302 Modern Philosophy. (3 3 0)** History of the development of western thought in the modern world. Spring. Formerly PHIL 302.
- PHIL 3392 Special Topics. (3 3 0)** Prerequisite: three hours of philosophy or permission of instructor. Treatment of one or more specific topics in the history of philosophy. May be repeated once for credit when topic varies. Same as ENGL 3392. Formerly PHIL 399.
- PHIL 3394 Independent Study. (3 0 0)** Prerequisite: junior standing and consent of department head. Individual study designed to meet needs and interests of the student. Formerly PHIL 390.
- PHIL 4302 Major Figures in Philosophy. (3 3 0)** Prerequisite: three credit hours of philosophy or permission of instructor. Thought of philosophers who have greatly influenced development of western concepts and values. May be repeated once when topics vary. Spring. Formerly PHIL 402.

PHYS—Physics

(Offered through the Department of Mathematics, Physical Sciences and Engineering.)

- PHYS 1401 General Physics I. (4 3 2)** Prerequisite: MATH 1314 or two years of high school algebra and one year of geometry. Classical mechanics including Newton's Laws and the mathematical description of motion. Selected laboratory experiments. Fall, spring, summer I. Formerly PHYS 101.
- PHYS 1402 General Physics II. (4 3 2)** Prerequisite: 1401. Particles and their interactions, waves and modern physics. Selected laboratory experiments. Fall, spring, summer II. Formerly PHYS 102.
- PHYS 2425 Engineering Physics I. (4 3 2)** Prerequisite: MATH 2414 or concurrent enrollment. Mathematical treatment (calculus) of mechanics, energy and waves. Selected laboratory experiments. Spring. Formerly PHYS 210.
- PHYS 2426 Engineering Physics II. (4 3 2)** Prerequisite: 2425 and MATH 2414. Mathematical treatment (calculus) of electricity, magnetism and optics. Selected laboratory experiments. Fall. Formerly PHYS 211.
- PHYS 2427 Engineering Physics III. (4 3 2)** Prerequisite: PHYS 2426/2426L. Free oscillations, forced oscillations, traveling waves, wave packets, interference and diffraction. Spring.
- PHYS 3095 Laboratory Problems. (1-6 0 0)** One to three semester hours at a time. May be repeated with different content to a total of six semester hours. Fall, spring, summer I, summer II. Formerly PHYS 341.
- PHYS 3301 Solar Energy: Residence and Rural Systems. (3 3 0)** Alternative energy (solar, wind, biomass) for residence and rural application. Formerly PHYS 301.
- PHYS 3302 Wind Energy and Wind Turbines. (3 3 0)** Introduction to wind characteristics, wind turbine types, design of wind turbines, experimental results and economics. Formerly PHYS 302.
- PHYS 3310 Modern Physics I. (3 3 0)** Prerequisite: 2426 and MATH 2414. Quantum theory, special theory of relativity, waves and particles, quantum mechanics in one dimension, hydrogen atom. Fall of odd years. Formerly PHYS 310.
- PHYS 3320 Thermodynamics. (3 3 0)** Prerequisite: 2426; concurrent enrollment in MATH 3340. Equations of state, ideal gases, first and second laws of thermodynamics, entropy and statistical methods. Fall of odd years. Formerly PHYS 320.
- PHYS 3330 Mechanics I. (3 3 0)** Prerequisite: 2426. Particle and extended body dynamics, force fields, energy and momentum. Fall of even years. Formerly PHYS 330.
- PHYS 3340 Electricity and Magnetism I. (3 3 0)** Prerequisite: 2426. Electric Field, potential energy relationships and electromagnetic waves. Fall of even years. Formerly PHYS 340.
- PHYS 3342 Introduction to Astronomy. [PHYS 1311] (3 3 0)** Descriptive approach to planets, stars and galaxies. Fall. Formerly PHYS 440.
- PHYS 3450 Advanced Laboratory Techniques. (4 3 2)** Prerequisite: 3310. Data collection, data analysis, experimental design, simulations, automated data collection, advanced instrumentation. Spring of even years.
- PHYS 4310 Modern Physics II. (3 3 0)** Prerequisite: PHYS 3310. Applications of elementary quantum theory to molecular, solid-state, nuclear and elementary particle physics. Spring of even years. Formerly PHYS 410.
- PHYS 4320 Quantum Mechanics I. (3 3 0)** Prerequisite: 2426. Schrodinger equation, particle in a box, operators, harmonic oscillator, angular momentum operators, hydrogen atom. Spring of even years. Formerly PHYS 420.
- PHYS 4321 Principles of Physical Science. (3 3 0)** Non-mathematical approach to fundamentals of physics and chemistry. Designed for science education students and public school teachers desiring to satisfy deficiencies. Essential elements of physical science and objectives for the physical science TExES test will be covered. Spring. Formerly PHYS 321.
- PHYS 4330 Optics. (3 3 0)** Prerequisite 2426. Physical optics, propagation of light, interference and diffraction, general wave equation, interaction of electromagnetic radiation with matter. Spring of odd years. Formerly PHYS 430.
- PHYS 4340 Mathematical Methods. (3 3 0)** Prerequisite: MATH 3340. Mathematical methods of physics: vectors, matrices, vector differential operators, differential equations, integral theorems, infinite series, eigenfunctions and numerical methods. Spring of odd years.
- PHYS 4350 Computational Physics. (3 3 0)** Prerequisite: 2427, CIS 1315 or consent of instructor. Data acquisition, data fitting, numerical differentiation, numerical integration, Monte Carlo simulations, Monte Carlo integration, random walks, Euler's method, second order Runge-Kutta method, fourth order Runge-Kutta method, elliptical PDEs, parabolic PDEs, hyperbolic PDEs. Spring of odd years.
- PHYS 4360 Nuclear Physics. (3 3 0)** Prerequisite: 3310. Natural and artificial radioactivity. Topics include the neutron, positron, nuclear structure and forces, binding energies, nuclear fission and fusion, particle accelerators and cosmic rays. Spring of even years.
- PHYS 4370 Solid State Physics. (3 3 0)** Prerequisite: 3310. Properties of crystalline materials; electrical and thermal conductivity; heat capacity; crystalline binding; nature of metals, insulators and semiconductors; dielectric properties; and magnetic properties. Spring of even years.
- PHYS 4380 Astrophysical Measurement Techniques. (3 3 0)** Prerequisite: 3342. How astronomical data is collected and analyzed. Topics include design and use of optical, radio and gamma ray telescopes. Analysis of data from these types of telescopes using standard computer software that

professional astronomers use for research. Methods of analysis include spectroscopy, photometry, polarimetry and image processing. Spring of even years.

PHYS 6310 Advanced Mathematical Methods. (3 3 0)

Prerequisite: 4340. Partial differential equations, Green's functions, perturbation theory, integral equations, calculus of variations, tensor analysis, group theory. Spring of odd years.

PHYS 6320 Advanced Quantum Mechanics. (3 3 0) Prerequisite: 4320, 6310. Hilbert spaces, central force problems, spin, angular momentum, perturbation theory. Fall of odd years.

PHYS 6330 Classical Mechanics. (3 3 0) Prerequisite: 3330, 6310. Lagrange's equations, Hamilton's principle, central force problems, rigid body motion, Hamilton equations, canonical transformations, Hamilton-Jacobi theory. Fall of even years.

PHYS 6340 Electromagnetism. (3 3 0) Prerequisite: 3340, 6310. Electrostatics, magnetostatics, slowly varying fields, dielectrics, Maxwell's equations, radiation. Spring of odd years.

PHYS 6350 Statistical Mechanics. (3 3 0) Prerequisite: 3320, 6310. Distribution functions, kinetic theory of gases, Boltzmann's H-theorem, phase space, Liouville's theorem, transport phenomena. Spring of even years.

PHYS 6360 Advanced Thermodynamics. (3 3 0) Prerequisite: 3320, 4340. Entropy function, extremum principles, thermal stability, phase transitions, chemical thermodynamics, fluctuations, irreversible thermodynamics. Spring of even years.

POSC—Political Science

(Offered through the Department of History, Political Science and Criminal Justice.)

POSC 1310 Introduction to Law. [GOVT 1310] (3 3 0) Practical study of substantive civil and criminal law and procedures applicable to the average citizen in everyday life. Same as CRJ 1310. Formerly POSC 107.

POSC 2304 Introduction to Political Science. [GOVT 2304] (3 3 0) Examination of major fields of political science including American government, local government, public policy and administration, public law, international relations, comparative politics and political theory.

POSC 2305 American National Government. [GOVT 2305] (3 3 0) Origins, structure and functions of national government of the United States and principles which underlie American democracy. Fall, spring. Formerly POSC 101.

POSC 2306 American State and Local Government. [GOVT 2306] (3 3 0) Principal aspects of state and local government in the United States with special reference to Texas. Fall, spring. Formerly POSC 102.

POSC 3301 The American Presidency. (3 3 0) In-depth analysis of the American presidency. Emphasis on powers and duties of the president in both historical and contemporary settings. Includes the president's relations with Congress, federal courts and bureaucracy. Formerly POSC 347.

POSC 3303 U.S. Congress. (3 3 0) Theory, composition, organization and procedures of the U.S. Congress; relations with political parties and interest groups; linkage with executive and judicial branches; legislative and nonlegislative functions; proposals for improvement. Formerly POSC 412.

POSC 3305 Judicial Process. (3 3 0) Decision-making process in the judicial branch with emphasis on the impact of courts on American politics. Formerly POSC 350.

POSC 3307 Municipal Government. (3 3 0) Organization, legal aspects, functions and administration of the American municipality; relationship of the city to other units of government; current problems of city governments. Formerly POSC 312.

POSC 3311 Public Opinion. (3 3 0) Nature of public opinion, factors involved in formation and measurements, techniques of modern propaganda and social controls influencing public information. Same as SOCI 3311. Formerly POSC 341.

POSC 3312 Political Parties and Interest Groups. (3 3 0) Analysis of history, structures, activities, and roles of political parties and interest groups in the American political system. Formerly POSC 346.

POSC 3313 Campaigns and Campaign Management. (3 3 0) Practical aspects of political campaigning and campaign management including political campaign organization, planning, strategy and tactics, and campaign activity. Formerly POSC 370.

POSC 3315 Religion and Politics. (3 3 0) Examination of the interaction of religion and American political life. Problems and prospects presented by mixing religion and politics. Formerly POSC 342.

POSC 3317 Women and Politics. (3 3 0) Role of women in politics, including political participation and development of public policy. Formerly POSC 344.

POSC 3361 Contemporary Political Research Methods. (3 3 0) Introduction to research methods used in political science. Emphasis on recent attempts to develop empirical political theory. Formerly POSC 345.

POSC 3362 Statistics for the Social Sciences. (3 3 0) Introduction to statistical techniques most commonly used in social sciences. Emphasis on nonparametric tests, correlation, sampling techniques and use of SPSS. Same as SOCI 3362, SOWK 3362 and CRJ 3362. Fall, spring. Formerly POSC 362.

POSC 3365 Political Thought. (3 3 0) Introductory survey of the leading political ideas in the development of western political thought. Course is strongly recommended as a background to other advanced courses. Formerly POSC 331.

POSC 4096 Readings. (1-3 0 0) Designed to meet specific student needs as approved by department head. Students may enroll for one, two or three hours credit. May be repeated for a maximum of six hours when topics vary. Formerly POSC 498.

POSC 4098 Internship. (1-6 0 0) Prerequisite: consent of instructor. Practical application of administrative principles in the governmental process. Formerly POSC 404.

POSC 4331 Administrative Law. (3 3 0) Purposes and nature of legal controls over governmental administration; rights, duties and liabilities of administrative officials; legal remedies for administrative acts; administrative jurisdiction; conclusiveness of administrative acts. Formerly POSC 431.

POSC 4333 American Constitutional Development. (3 3 0) Development of main constitutional principles of the American system of government especially as shaped by judicial interpretation. Nature of judicial power, problems of federalism and division of powers, separation and delegation of powers. Recent trends in constitutional development. Formerly POSC 442.

POSC 4335–5376

- POSC 4335 American Constitutional Limitations. (3 3 0)** American concept of limited government and various constitutional rights and protections under the American constitutional system. Formerly POSC 443.
- POSC 4340 Constitutional Rights of the Accused. (3 3 0)** In-depth study of processes of the criminal justice system governed by guarantees and protections of U.S. and state constitutions with emphasis on recent developments. Same as CRJ 4340. Formerly POSC 415.
- POSC 4350 Public Administration. (3 3 0)** Development and role of administration in the governmental process; principles and problems of administrative organization and coordination; financial and personnel management; problems of administrative control and responsibility. Formerly POSC 402.
- POSC 4352 Administrative Management. (3 3 0)** Methods of applying administrative principles to the operating process of governmental agencies. Relevance of administrative theory to management procedures in government. Formerly POSC 403.
- POSC 4354 Public Personnel Administration. (3 3 0)** Development and role of public service; basic principles, practices and problems in public personnel administration. Formerly POSC 405.
- POSC 4355 Public Financial Administration. (3 3 0)** Budgeting problems and internal fiscal practices in American government. Problems of administrative organizations in fiscal activities. Formerly POSC 406.
- POSC 4357 Public Policy Formulation. (3 3 0)** Dynamics of public-policy formulation. Emphasis on analytical framework and substance of policy. Formerly POSC 407.
- POSC 4366 Modern Political Thought. (3 3 0)** Leading political ideas of the 19th and 20th centuries and their relation to social and economic conditions and political institutions of the time. Formerly POSC 482.
- POSC 4367 American Political Thought. (3 3 0)** Ideas from the colonial period to present. Formerly POSC 471.
- POSC 4369 American National Security. (3 3 0)** Political analysis of structures, functions and policies relating to American national security; emphasis on defense and intelligence institutions and policies, conventional weapons, weapons of mass destruction, homeland security, terrorism and international linkages. Formerly POSC 465.
- POSC 4370 International Relations. (3 3 0)** Basic historical, economic and cultural factors in contemporary world politics. Rise and development of Western state systems; foundations of national power; sovereignty, nationalism, and imperialism and problems resulting from these factors; development of concepts of international cooperation of government. Formerly POSC 422.
- POSC 4371 American Foreign Policy. (3 3 0)** Evolution, objectives and special problems of American foreign policy with reference to developments since World War II. Formerly POSC 462.
- POSC 4372 Nuclear Weapons and World Politics. (3 3 0)** History of development of nuclear weapons and delivery systems: use during World War II, deterrence and related theories, scenarios for nuclear war, Soviet and American views, proliferation, arms limitation efforts, peace movements and the overall impact on international relations. Formerly POSC 423.
- POSC 4374 International Law and Organization. (3 3 0)** Nature, sources, development and scope of public international law; present status of international law; evolution, scope, and functions of institutions and agencies for international cooperation. Emphasis on the United States. Formerly POSC 425.
- POSC 4376 Former Soviet Union: Domestic and Foreign Policies. (3 3 0)** Survey of the Russian era before the communist revolution of 1917, the period of communist rule and the post-Soviet era. Equal emphasis on domestic political developments and foreign policy. Formerly POSC 456.
- POSC 4378 Asian Governments and Politics. (3 3 0)** Political analysis of major nations of Asia: People's Republic of China, Japan and India; survey of other nations in South, East and Southeast Asia; international relations involving the region. Formerly POSC 460.
- POSC 4380 European Parliamentary Governments. (3 3 0)** Organization, procedures and problems of parliamentary government in comparison with the presidential system of the United States. Based on study of governments of England, France and Germany. Formerly POSC 301.
- POSC 4382 Comparative Public Administration. (3 3 0)** Theory relevant for comparing public administrative systems in various political systems; public administration in developing countries and in advanced nations; interaction between the broad cultural environment and bureaucracy. Formerly POSC 410.
- POSC 4392 American Politics. (3 3 0)** Designed to permit departmental staff members to develop a course which thoroughly examines some contemporary issue or problem in American politics. Students should check with the department for specific topic. May be repeated once when topics vary. Formerly POSC 401.
- POSC 5307 Municipal Government. (3 3 0)** Organization, legal aspects, functions and administration of American municipality; relationship of the city to other units of government; current problems of city governments. Formerly POSC 5312.
- POSC 5369 American National Security. (3 3 0)** Political analysis of structures, functions and policies relating to American national security; emphasis on defense and intelligence institutions and policies, conventional weapons, weapons of mass destruction, homeland security, terrorism and international linkages. Formerly POSC 5465.
- POSC 5370 International Relations. (3 3 0)** Basic historical, economic and cultural factors in contemporary world politics. Rise and development of Western state systems; foundations of national power; sovereignty, nationalism, imperialism and problems resulting from these factors; development of concepts of international cooperation of government. Formerly POSC 5422.
- POSC 5371 American Foreign Policy. (3 3 0)** Evolution, objectives and special problems of American foreign policy with particular reference to developments since World War II. Formerly POSC 5462.
- POSC 5374 International Law and Organization. (3 3 0)** Nature, sources, development and scope of public international law; present status of international law; evolution, scope and functions of institutions and agencies for international cooperation. Emphasis on the United States. Formerly POSC 5425.
- POSC 5376 Former Soviet Union: Domestic and Foreign Policies. (3 3 0)** Survey of the Russian era before the 1917 communist revolution, the period of communist rule and the post-Soviet era. Equal emphasis on domestic political developments and foreign policy. Formerly POSC 5456.

- POSC 5378 Asian Governments and Politics. (3 3 0)** Political analysis of major nations of Asia: People's Republic of China, Japan and India; survey of other nations in South, East and Southeast Asia; international relations involving the region. Formerly POSC 5460.
- POSC 6096 Readings and Research. (1-3 0-3 0)** Directed individual and group readings and investigations in areas of government not covered in available courses. With consent of department head, may be repeated once when topics vary. Formerly POSC 5591.
- POSC 6098 Graduate Internship. (3,6 0 0)** Practical application of governmental processes. Formerly POSC 5504.
- POSC 6301 Thesis. (3 0 0)** Formerly POSC 5501.
- POSC 6302 Thesis. (3 0 0)** Formerly POSC 5502.
- POSC 6305 Problems in American National Government. (3 3 0)** Selected functions and processes of the American federal system. With consent of department head, may be repeated once when topics vary. Formerly POSC 5511.
- POSC 6306 Advanced Topics in State and Local Government. (3 3 0)** Selected functions, institutions and processes of state and local governments in the United States. With consent of department head, may be repeated once when topics vary. Formerly POSC 5507.
- POSC 6310 Seminar in Social and Political Theory. (3 3 0)** Topics vary from classical to modern theories. Emphasis on development of types and schools of theories. With consent of department head, may be repeated once when topics vary. Same as SOCI 6310. Formerly POSC 5510.
- POSC 6312 Problems in Social and Political Institutions. (3 3 0)** Critical investigation of social conditions affecting structure and functions of contemporary social and political institutions. Same as SOCI/CRIJ 6312. Formerly POSC 5515.
- POSC 6335 Seminar in American Judiciary. (3 3 0)** In-depth examination of various issues relating to the national and state judiciary including selection of judges, judicial politics, components of the court work group and their functions, problems in administration of justice, and other issues of judicial behavior and process. Same as CRIJ 6335. Formerly POSC 5544.
- POSC 6337 Advanced Studies in Criminal Law. (3 3 0)** Critical study of aspects of law that are relevant to the criminal justice system and its related processes including theories of law, historical development, substantive and procedural laws, and administrative law. Same as CRIJ 6337. Formerly POSC 5546.
- POSC 6340 The Criminal Justice System—An Overview. (3 3 0)** Intensive overview of the criminal justice system as a system including theory, current issues and trends. Same as CRIJ 5512.
- POSC 6342 Seminar in Criminal Justice. (3 3 0)** Contemporary national, state and local problems in criminal justice. May be repeated once when topics vary. Same as SOCI/CRIJ 6342. Formerly POSC 5513.
- POSC 6346 Seminar in Criminal Justice Administration and Public Policy. (3 3 0)** Advanced study of organizational theories with application to complex criminal justice organizations in the areas of human resource management, intergovernmental relations, planning and evaluation of programs. With permission of instructor, may be repeated once when topics vary. Same as CRIJ 6346. Formerly POSC 5509.
- POSC 6350 Problems in Public Administration. (3 3 0)** Development and role of administration in the governmental process; principles and problems of administrative organization and coordination; financial and personnel management; problems of administrative control and responsibility.
- POSC 6351 Seminar in Public Policy. (3 3 0)** Selected aspects of American public policy, theory, organization, administration and administrative procedures in government. With consent of department head, may be repeated once for credit. Formerly POSC 5531.
- POSC 6352 Environmental Policy Issues. (3 3 0)** Prerequisite: 2305 and 2306; three hours advanced political science. Federal and state policies, rules and regulations as they apply to planning and policy issues relating to the environment. Selected case studies in American government relating to environmental quality issues will be evaluated. Same as ECON 6352. Formerly POSC 5530.
- POSC 6353 Seminar in Administrative Management. (3 3 0)** Methods of applying administrative principles to the operating process of governmental agencies. Relevance of administrative theory to management procedures in government. Development and role of public service; basic principles, practices and problems in public personnel administration.
- POSC 6355 Seminar in Public Financial Administration. (3 3 0)** Budgeting problems and internal practices in American government. Problems in administrative organizations in fiscal activities.
- POSC 6370 Problems in International Relations. (3 3 0)** Selected problems of contemporary international relations. With consent of department head, may be repeated once when topics vary. Formerly POSC 5522.
- POSC 6372 Comparative Political and Social Systems. (3 3 0)** Seminar in comparative political and social systems. Examination of theories and research methods concerning comparative approaches. Political ideologies, structures and functions; culture, classes, violence, racism and economics. May be repeated once for credit with consent of department head. Formerly POSC 5545.
- POSC 6387 Seminar in Research Methods. (3 3 0)** Nonparametrics; measurement; surveys, research, design; scale construction; methodology. With permission of department head, may be repeated once when topics vary. Same as CRIJ/SOCI 6388. Formerly POSC 5587.
- POSC 6388 Statistics for Social and Criminological Research (3 3 0)** Prerequisite: undergraduate social statistics or equivalent. Statistical techniques most commonly used in criminal justice with emphasis on probability, estimation, hypothesis methods, sample techniques and use of SPSS. Same as CRIJ/SOCI 6388. Formerly POSC 5588.

PSES—Plant, Soil and Environmental Science

(Offered through the Division of Agriculture.)

- PSES 1301 Principles of Horticulture. [HORT 1301] (3 2 2)** Prerequisite: 1307 or four hours of biology. Horticultural plants including turfgrass, fruit, vegetable, nut, flowering and ornamental plants and their propagation, culture, harvest, storage and utilization. Formerly PSES 216.
- PSES 1307 Principles of Plant Science. [AGRI 1307] (3 2 2)** Fundamentals of agricultural plants with emphasis on plant

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- structure, nutrition, breeding, function and soil characteristics as related to production of economic plants. Formerly PSES 112.
- PSES 2371 Grain and Forage Crops. (3 2 2)** Prerequisite: 1307 or four semester hours of biology. Identification, distribution, production, harvesting, utilization, and improvement of grain and forage crops. Formerly PSES 231.
- PSES 2372 Individual Study of Seed and Plant Quality. (3 0 6)** Identification and evaluation of seed and plant quality. Identification of field crops, important diseases which attack them, weed seeds, practice in judging quality and values of seeds and crop products, and commercial grain grading. May be repeated once for credit. Formerly PSES 230.
- PSES 3230 Soil Profile Evaluation. (2 0 0)** Prerequisite: 3411. Field description and characterization of soil profiles. Application of taxonomic classification to soil profile descriptions. Evaluation of land use based on profile characteristics. May be repeated once for credit. Formerly PSES 330.
- PSES 3342 Plant Breeding. (3 3 0)** Prerequisite: AGRI 3301 or BIOL 3301 or concurrent registration. Application of genetics to breeding and improvement of field crops. The role of seed certification in maintenance of varietal purity and production of quality seed. Formerly PSES 342.
- PSES 3411 Soils. (4 3 2)** Prerequisite: CHEM 1405 or 1411. Origin, formation and classification of soils and the relationship of their physical, chemical, mineralogical and biological properties to environmental issues and plant growth. Fall, spring. Formerly PSES 311.
- PSES 4094 Independent Study. (3-4 0 0)** Prerequisite: junior standing and consent of instructor. Individualized studies on current topics in plant and/or soil science. Formerly PSES 450.
- PSES 4097 Undergraduate Research. (2-4 0 0)** Prerequisite: consent of division head. Selected individual research problems. Completion of a problem which is more extensive than problems encountered in normal class work. Formerly PSES 498.
- PSES 4302 Range Management. (3 2 2)** Prerequisite: junior standing. Practical problems met in managing pasture and range lands, including studies of vegetation, reseeding, maintenance of production, utilization of forage, control of brush, and poisonous plants and methods of handling livestock on the range. Formerly PSES 402.
- PSES 4311 Soil Morphology and Classification. (3 2 2)** Prerequisite: 3411. Characteristics of soil development, soil catenas and landscape relations, systems of soil taxonomy, regional and world soils, and wetlands classification. Field description of soil profiles, application of taxonomic classification to soil profile descriptions. Spring of even years. Formerly PSES 411.
- PSES 4330 Crop Physiology. (3 3 0)** Prerequisite: 1307 or four semester hours of biology. Basic physiological processes of plants and application of these principles to increasing the yield of economic plants. Formerly PSES 430.
- PSES 4331 Soil and Water Conservation. (3 2 2)** Prerequisite: 3411. Emphasis on principles of wind and water erosion control, water conservation practices, surveying, and evapotranspiration and irrigation management. Spring of odd years. Formerly PSES 431.
- PSES 4342 Soil Fertility. (3 3 0)** Prerequisite: 3411. Behavior of nutrient elements in soils and plants. Emphasis on nitrogen, phosphorous and potassium. Fall of odd years. Formerly PSES 442.
- PSES 4393 Honors.**
- PSES 4398 Plant, Soil and Environmental Science Internship. (3 0 0)** Prerequisite: consent of division head. Supervised internship in an approved discipline of plant, soil and environmental science. Students receive on-the-job training under supervision of faculty and industry personnel. Formerly PSES 497.
- PSES 5302 Range Management. (3 2 2)** Problems in managing pasture and range lands, including studies of vegetation reseeding, maintenance of production, utilization of forage, control of brush and poisonous plants, proper stocking rates and methods of handling livestock on the range. Formerly PSES 5402.
- PSES 5311 Soil Morphology and Classification. (3 2 2)** Prerequisite: 3411. Characteristics of soil development, soil catenas and landscape relations, systems of soil taxonomy, regional and world soils, and wetlands classification. Field description of soil profiles, application of taxonomic classification to soil profile descriptions. Spring of even years. Formerly PSES 5411.
- PSES 5330 Crop Physiology. (3 3 0)** Prerequisite: nine hours of plant science and/or biology. Basic physiological processes of plants and application of these principles to increasing the yield of economic plants. Formerly PSES 5430.
- PSES 5331 Soil and Water Conservation. (3 2 2)** Prerequisite: 3411. Special emphasis on principles of wind and water erosion control, water conservation practices, surveying, and evapotranspiration and irrigation management. Spring of odd years. Formerly PSES 5431.
- PSES 5342 Soil Fertility. (3 3 0)** Prerequisite: 3411. Behavior of nutrient elements in soils and plants. Emphasis on nitrogen, phosphorous and potassium. Fall of odd years. Formerly PSES 5442.
- PSES 6096 Directed Studies in Plant Science. (3-4 0-4 0)** Readings and directed individual studies in various topic areas that specifically relate to the graduate student's interests and needs. Formerly PSES 5550.
- PSES 6097 Research. (1-6 0 0)** Investigations in areas of current interest. May be repeated for credit. Formerly PSES 5598.
- PSES 6098 Advanced Professional Internship. (3-6 0 0)** Prerequisite: consent of instructor. Supervised internship in an approved discipline of plant agriculture. Detailed evaluation of the selected work area while receiving on-the-job training under supervision of faculty and cooperating personnel. Formerly PSES 5597.
- PSES 7092 Special Topics. (1-6 0-6 0-12)** Recent advances and current topics in plant, soil and environmental sciences. May be repeated once for credit. Formerly PSES 5599.
- PSES 7310 Advanced Plant Breeding. (3 3 0)** Prerequisite: one semester of genetics. Theory and practice of plant breeding, breeding methods, mutation breeding and cytogenetics in crop improvement. Formerly PSES 5510.
- PSES 7315 Advanced Agronomy. (3 3 0)** Current agronomic research and practices designed to maximize yield and reduce cost in production of food, forage and fiber crops. Formerly PSES 5515.
- PSES 7325 Soil-Plant-Water Relationships. (3 2 2)** Prerequisite: six hours of soil science and PSES 4330 or BIOL 3312 or consent of instructor. Interrelated study of physical and physiological processes in the soil-plant atmosphere system:

soil-water absorption and movement, plant-water transport, transpiration and measurement of plant-water stress. Formerly PSES 5525.

PSES 7344 Agricultural Waste Management. (3 3 0) Issues and solutions for managing agricultural wastes. Manure characteristics, treatment methods, environmental regulations, odors, air quality, composting and land applications. Same as ENVR 6344. Formerly PSES 5544.

PSES 8301 Advanced Plant and Soil Management. (3 3 0) Interrelationships between plants and soil under various management systems. Formerly PSES 6001.

PSYC—Psychology

(Offered through the Department of Behavioral Sciences.)

PSYC 2170 Psychology Seminar. (1 1-0 0-2) Selected high-interest topics in psychology with emphasis on recent advances, emerging trends and contemporary perspectives. May enroll up to three times when subject matter varies. Formerly PSY 290.

PSYC 2272 Professional Psychology: Careers, Ethics and Research Methodology. (2 1 2) Prerequisite: 2301. Introduction to areas of specialization, ethical considerations and research methods in professional psychology with emphasis on critical thinking, communication techniques, empirical methods and evaluation of research data. Formerly PSY 202.

PSYC 2301 General Psychology. (3 3 0) Introduction to psychology as a science. Formerly PSY 201.

PSYC 2314 Human Development. (3 3 0) Psychological aspects of growth and development with emphasis on childhood. Formerly PSY 204.

PSYC 2315 Human Behavior and Personal Adjustment. (3 3 0) Individual and social factors which influence behavior, emphasis on prevention of maladjustment. Same as SOCW 2315. Formerly PSY 210.

PSYC 3310 Introduction to Statistics. (3 3 0) Descriptive statistics including central tendency, variability correlation and regression. Inferential statistics with emphasis on ANOVA. Formerly PSY 304.

PSYC 3311 Experimental Psychology. (3 2 2) Prerequisite: 2301, 3310. Experimental methods of psychology and use in study of psychological processes. Formerly PSY 305.

PSYC 3320 Biological Psychology. (3 3 0) Prerequisite: 2301. Physiological mechanisms underlying basic psychological functions. Formerly PSY 373.

PSYC 3322 Health Psychology. (3 3 0) Prerequisite: 2301. Introduction to the field of health psychology with emphasis on a biopsychosocial approach to the study of health promotion and maintenance, prevention and treatment of illness, identification of causes and correlates of health and illness, and impact of health institutions and health professionals on people's behavior. Formerly PSY 360.

PSYC 3335 Cognitive Processes. (3 3 0) Prerequisite: 2301. Basic cognitive processes: attention, memory, concept formation, reasoning and information processing. Formerly PSY 376.

PSYC 3350 Social Psychology. (3 3 0) Prerequisite: 2301. Review of theories and research relating to individual behavior in the social environment. Same as SOCI 3350. Formerly PSY 302.

PSYC 3355 Theories of Personality. (3 3 0) Prerequisite: 2301. Major theories of personality development. Formerly PSY 425.

PSYC 3360 Abnormal Psychology. (3 3 0) Prerequisite: 2301. Personality abnormalities; description, causation and treatment. Formerly PSY 423.

PSYC 3373 Forensic Psychology. (3 3 0) Prerequisite: 2301. Introduction to the field of psychology with emphasis on jury decision making, criminal profiling, eyewitness memory, insanity/mental competency and careers within forensic psychology. Formerly PSY 330.

PSYC 3375 Theories of Counseling. (3 3 0) Prerequisite: 2301. Major counseling theories, related techniques, and introduction to current ethical and professional issues for the beginning human services worker. Formerly PSY 488.

PSYC 3392 Current Issues in Psychology. (3 3 0) Prerequisite: 2301. Topics such as psychology of religion, psychobiology, community psychology or behavioral medicine. May be repeated once for credit when subject matter varies. Formerly PSY 398.

PSYC 3430 Psychology of Learning. (4 3 2) Prerequisite: 2301. Current research and issues on reinforcement, punishment, extinction, generalization, discrimination learning, transfer and retention. Concurrent human and animal laboratory exercises. Formerly PSY 375.

PSYC 4319 History and Systems of Psychology. (3 3 0) Prerequisite: 2301. Survey of history and major systems of psychology. Formerly PSY 442.

PSYC 4324 Drugs and Behavior. (3 3 0) Prerequisite: 2301. Introduction to the field of psychopharmacology with emphasis on relationships between drugs, their mechanisms of action in the nervous system and human behavior. Formerly PSY 480.

PSYC 4341 Psychology of Adolescence and Youth. (3 3 0) Prerequisite: 2301. Psychological growth and development from adolescence through early maturity. Formerly PSY 390.

PSYC 4342 Psychology of Adulthood. (3 3 0) Prerequisite: 2301. Theoretical and practical issues in adulthood, including aging and death. Formerly PSY 395.

PSYC 4361 Psychology of the Emotionally Disturbed Child and Youth. (3 3 0) Prerequisite: 2301. Dynamics and management of emotionally disturbed children. Formerly PSY 430.

PSYC 4371 Introduction to Psychological Testing. (3 2 2) Prerequisite: 2301. Administration and interpretation of representative tests of mental ability, achievement, interests, aptitudes and personality. Formerly PSY 469.

PSYC 4377 Behavior Modification. (3 3 0) Prerequisite: 2301, 3430 or permission of instructor. Basic techniques and procedures of behavior analysis and modification. Formerly PSY 477.

PSYC 4395 Problems in Psychology. (3 0-3 0-6) Prerequisite: 2301, 3.0 GPA in all work completed in psychology and approval of department head. Production of a creditable problem of research in a psychological field of value to the student. May be repeated with approval of instructor. Formerly PSY 490.

PSYC 4399 Practicum in Psychology. (3 0 0) Prerequisite: 2301, 3.0 GPA in all work completed in psychology and approval of department head. Supervised field experience under person with background and primary training in