Descriptions—Osteopathic Medicine

Courses

590. Special Problems
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 60 credits in all enrollments for this course.
R: Open only to graduate-professional students in College of Osteopathic Medicine. Approval of college. Individual study directed by a faculty member on an experimental, theoretical, or applied problem.
QA: OST 590

PACKAGING

10. Principles of Packaging
Fall, Spring, Summer. 3(3.0)
Packaging systems, materials and forms and their relationship to the needs and wants of society.
QP: PKG 210

310. Technical Principles and Dynamics for Packaging
Fall, Spring. 4(3-2)
P: MTH 124 or MTH 132; PHY 232. R: Open only to Packaging students.
Testing, evaluating, and predicting package performance under various environmental conditions. Methods of protection against shock, vibration, and other environmental hazards.
QP: PHY 239, MTH 112 or MTH 122 QA: PKG 321, PKG 425

320. Plastic and Glass Packaging
Fall, Spring. 4(3-2)
P: CEM 143, PKG 310. R: Open only to Packaging students.
Physical and chemical properties of plastic and glass and their relationship to selection, design, manufacture, performance and evaluation of packages.
QP: PKG 321, CEM 143 QA: PKG 331

325. Paper and Metal Packaging
Fall, Spring. 4(3-2)
P: CEM 143, PKG 310. R: Open only to Packaging students.
Physical and chemical properties, manufacture, conversion and use of wood, paper, paperboard, metal foils and related components. Design, use and evaluation of packages.
QP: PKG 321, CEM 143 QA: PKG 332

330. Package Printing
Fall. 3(3-0)
P: PKG 310. R: Open only to Packaging students.
Methods of printing packages including copy preparation, design, electronic imaging, aesthetics, camera use, and effects of package materials. Production of printed packages including quality control, economics, and environmental considerations.
QP: PKG 321 QA: PKG 330

370. Packaging and the Environment
Spring. 3(3-0)
QP: CEM 141 QA: PKG 340

415. Packaging Decision Systems
Fall, Spring. 3(3-2)
P: MTH 110 or MTH 115; CPS 160 or CPS 130 or CPS 151. R: Open only to majors in Packaging.
Application of computers to analyze and solve problems in the management, specification, production and testing of packaging systems.
QA: PKG 406

432. Packaging Processes
Fall, Spring. 4(3-2)
P: PKG 320, PKG 325. R: Open only to Packaging students.
QP: PKG 331, PKG 332 QA: PKG 430, PKG 425

440. Automation in Packaging
Fall. 3(2-2)
QP: MTH 112 QA: PKG 446

452. Pharmaceutical Packaging
Fall. 4(3-2)
P: PKG 320 or PKG 325. Special requirements for packaging pharmaceuticals and medical devices. Evaluation of package systems and packaging procedures.
QP: PKG 351 or PKG 392 QA: PKG 452

455. Food Packaging
Spring. 3(3-1)
P: PKG 350, PKG 325. R: Open only to Packaging majors.
Food package systems related to specific products and processes. Product composition: problems and packaging solutions, shelf life considerations, and packaging lines.
QP: PKG 331, PKG 392 QA: PKG 455

460. Distribution Packaging and Performance Testing
Spring. 3(3-2)
P: PKG 310. R: Open only to Packaging majors.
Interrelationships between packaging and distribution systems. Transportation, material handling, warehousing, logistics, and management systems. Performance testing and industry practices. Package container design and testing.
QP: PKG 321, PKG 423 QA: PKG 456, PKG 493

475. Packaging Economics
Fall. 3(3-0)
P: EC 201 or EC 202.
Economic issues in packaging as they relate to policies of the firm and of government. Relationships between economic and material issues.
QP: EC 201 or EC 202 QA: PKG 429

490. Packaging Laws and Regulations
Spring. 3(3-0)
P: PKG 320 or PKG 325. R: Open only to Packaging majors.
History and development of packaging laws and regulations. Relationships among law, government regulation and commercial regulation. Effect of current laws and regulations on packaging.
QP: PKG 331 or PKG 392 QA: PKG 450

495. Packaging Systems Development
Fall, Spring. 3(3-1)
P: PKG 432. R: Open only to seniors or graduate students in Packaging.
Package development including selection, design and implementation of package systems for protection, distribution, merchandising, use and disposal.
QP: PKG 429, PKG 425 QA: PKG 426

499. Directed Studies in Packaging
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
P: PKG 320, PKG 325. R: Open only to Packaging majors. Approval of department; application required. Development of solutions to specific packaging problems. Supervised individual study.
QP: PKG 331, PKG 392 QA: PKG 424

591. Selected Topics
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
P: PKG 320, PKG 325. R: Open only to Packaging majors.
Selected topics of interest to graduate packaging students.
QA: PKG 584

889. Master's Thesis Research
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 9 credits in all enrollments for this course.
P: Open only to Master's students in Packaging.
QA: PKG 586

PARK AND RECREATION RESOURCES

PRR

College of Agriculture and Natural Resources

290. Leisure and Society
Fall, Spring, Summer. 3(3-0)
Leisure and recreation as part of daily life. Leisure as a social, psychological, political, economic and cultural force in the United States.
QA: PRR 200

210. Our National Parks and Recreation Lands
Fall, Spring, Summer. 3(3-0)
Scope and history of federal recreation lands. Comparisons of national parks to other federal lands. Recreation land management in other nations. Future federal land management options.
QA: PRR 210
213. Introduction to Parks, Recreation, and Leisure
Fall, Spring, Summer. 3(0-0)
The scope and management of recreation services and resources. Historical and philosophical foundations. Inclusion of recreation behavior on state, national, international, economic, political and social institutions.
QP: PRR 213

215. Recreation Program Management
Fall, Spring. 4(3.2)
Programming and leadership principles for planning, management, and evaluation. Program design and conduct to service different clientele, using leisure education, program development, and small group processes. Field trips required.
QP: PRR 215

293. Field Work in Park and Recreation Resources
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course.
P: PRR 213, PRR 215. R: Open only to students in Park and Recreation Resources. Approval of department.
Professional field experience in a park or recreation setting.
QP: PRR 403

302. Environmental Attitudes and Concepts
Fall. 3(3-0)
P: One ISS course or one PSY course or one SOC course. R: Not open to freshmen.
History of attitudes and values associated with the environment, wilderness, environmental, environmental quality, conservation, and preservation. Perceptions and assessment of modern environmental problems.
QP: PRR 302

309. Human Behavior in Park and Recreation Settings
Spring. 3(3-0)
P: One PSY course or one SOC course. Antecedents, intervening conditions, and outcomes of human behavior in park, recreation, and leisure settings. Interactions between recreation behavior and the natural environment. Problem solving in recreation.
QP: PRR 213, PRR 215 QA: PRR 320

351. Recreation and Natural Resources Conservation
Fall. 3(2-2)
P: PRR 213. R: Not open to freshmen.
Principles of conservation for recreation and natural resource audiences. Application to various forms of interpretive media including verbal, graphic, and written. Field trips required.
QP: PRR 213, PRR 215 QA: PRR 351

362. Recreation for Special Populations
Spring. 3(3-0)
P: PRR 215. R: Not open to freshmen.
Therapeutic recreation services emphasizing handicap and geriatric characteristics. Chemical dependency issues. Leisure lifestyle issues. Philosophical foundations and service models. Integration, normalization, inclusion, and empowerment concepts.
QP: PRR 213, PRR 215 QA: PRR 362

370. Administration and Operation of Parks and Recreation Systems
Fall. 4(4-0)
P: PRR 215, PRR 351. R: Not open to freshmen and sophomores.
Policy, administration, and operations at municipal, county, and regional levels. Policy and administrative development of systems. Preparation and implementation of operation and maintenance plans and schedules.
QP: PRR 213, PRR 304, PRR 351 QA: PRR 442, PRR 440, PRR 448

371. Management of Park and Recreation Agencies and Organizations
Spring. 4(4-0)
Management and operating concepts and methods. Revenues and cost management, service marketing, staffing and supervision.
QP: ACC 230, PRR 215, PRR 216 QA: PRR 440, PRR 470, PRR 471

393. Professional Seminar
Fall, Spring. 1(1-0)
P: PRR 293. R: Open only to majors in Park and Recreation Resources.
Linkage of field work and internship. Integration of course work with professional practice.
QP: PRR 393 QA: PRR 381

445. Parks and Recreation Planning and Design Concepts
Spring. 4(2-4)
P: PRR 351. R: Not open to freshmen and sophomores.
Planning models and design analysis, synthesis, and communication and recreation and tourism subsystem and supply analysis.
QP: PRR 351 QA: PRR 444, PRR 445, PRR 304

449. Management of Natural Resource Based Recreation
Fall. 3(3-0)
R: Not open to freshmen and sophomores. The history of natural resource recreation management in the U.S. Techniques for dispersed and developed recreation management. Security of facilities, visitors, and personnel.
QP: PRR 213 QA: PRR 449

451. Park Interpretive Services and Visitor Information Systems
Spring of even-numbered years. 3(2-2)
P: PRR 351. R: Not open to freshmen and sophomores.
QP: PRR 351 QA: PRR 451

467. Programming in Therapeutic Recreation
Fall. 3(3-0)
P: PRR 362. Comprehensive and individual program planning methods. Standards of practice, quality assurance, interview techniques, professional ethics, and terminology.
QP: PRR 215 QA: PRR 467

468. Therapeutic Recreation Techniques
Spring. 3(3-0)
P: PRR 467.
QP: PRR 467 QA: PRR 468

473. Commercial Recreation and Tourism Enterprises
Fall. 3(3-0)
P: EC 201, PRR 371. R: Not open to freshmen and sophomores.
Management and operation of resort, recreation, and tourism enterprises. Emphasis on small business. Strategic planning, feasibility studies, market assessment, and quality assurance.
QP: EC 201, ACC 209, PRR 394 QA: PRR 470, PRR 471

474. Community and Natural Resource Based Tourism
Spring of odd-numbered years. 3(3-0)
R: Not open to freshmen and sophomores.
QP: PRR 213, PRR 304, PRR 351 QA: PRR 442, PRR 440, PRR 448

475. Evaluation in Parks and Recreation
Fall. 3(3-0)
P: STT 200 or STT 201 or PSY 295 or GEO 427. R: Open only to seniors or graduate students.
Evaluation concepts, approaches, and methods. Evaluation in management and administrative functions.
QP: PRR 215 or PSY 215 or GEO 427 QA: PRR 430

485. Legal Aspects of Parks, Recreation, and Sport
Fall. 3(3-0)
R: Open only to seniors or graduate students.
Legal concepts in management and operation of public and private programs, areas and facilities. Tort liability and risk management planning. Rights and behavior constraints of clientele. Legal foundations of authority.
QP: PRR 440

490. Independent Study
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
P: PRR 215, PRR 216. R: Approval of department; application required.
Individualized readings and research compatible with students' interests and abilities under the guidance of a faculty member.
QP: PRR 215, PRR 320 QA: PRR 480

491. Special Topics in Park and Recreation Resources
Fall, Spring. 3(3-0)
Courses for advanced undergraduate students who have special interests in Park and Recreation Resources.
QP: PRR 215, PRR 320

815. Park and Recreation Program Services
Fall. 3(3-0)
Concepts, theories, and philosophies of leisure and recreation. Role and function of delivery systems in communities. Management of the program-planning process and provision of recreation services to diverse groups.

840. Recreation and Tourism Economics
Fall. 3(3-0)
QP: PRR 840

841. Park and Recreation Administration and Policy
Fall. 3(3-0)
Administration and management of park and recreation services in urban and rural environments. Policy development and evaluation. Planning, financing, staffing, operating and evaluating organizational structures.
QP: PRR 871

844. Research Methods in Recreation, Parks, and Tourism
Spring. 3(3-0)
Recreation research needs, techniques, assessment and application. Management problems and decision making.
QP: PRR 844

848. The Law and Leisure Services
Spring. 3(3-0)
QP: PRR 849
Descriptions—Park and Recreation Resources of Courses

870. Park, Recreation, and Natural Resources Marketing Fall of odd-numbered years, 3(2-0)
R: Open only to graduate students in Park and Recreation Resources, Resource Development, Forestry, and Fisheries and Wildlife.
Integration of marketing concepts and methods into agency planning and decision making
QA: PRR 571

874. Leisure, Travel and Tourism Spring, 3(2-0)
Modern concepts of leisure, travel, and tourism. Historical antecedents and current concepts of leisure, travel, and tourism.
QA: PRR 571

879. Case Studies in Park and Recreation Resources Spring, 3(2-0)
P: PRR 391
Integrated approach to policy, planning, and management problems.

890. Independent Study Fall, Spring, Summer. 1 to 6 credits
A student may earn a maximum of 7 credits in all enrollments for this course.
Supervised individual study in an area of parks, recreation, leisure, or tourism.

891. Selected Topics Fall, Spring, Summer. 3 to 6 credits. A student may earn a maximum of 8 credits in all enrollments for this course.
Selected topics in park and recreation resources of current interest and importance.

892. Park and Recreation Resources Seminar Fall, Spring. 1 to 2 credits. A student may earn a maximum of 4 credits in all enrollments for this course.
Current policy issues, problems and research in parks, recreation and tourism.

899. Doctoral Dissertation Research Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course.
R: Open only to Ph.D. students in Park and Recreation Resources.

944. Advanced Research Methods Summer. 3(0-0)
P: PRR 844
Applications of advanced and specialized research methods to problems in recreation and tourism. Measurement, sampling, and research design.

PATHOLOGY

Department of Pathology
College of Human Medicine
College of Osteopathic Medicine
College of Veterinary Medicine

525. Neuropathology Problem Solving Exercises Fall, Spring, Summer. 2(0-4)
R: Open only to graduate-professional students in College of Human Medicine or Osteopathic Medicine. Independent study of 24 neuropathology problem solving exercises.
QA: PTH 525

542. Basic Principles of Pathology Fall
R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
Fundamental pathologic processes; clinical applications.

550. Veterinary Pathology Fall, 4(3-2)
R: Completion of the first year of the graduate-professional program in College of Veterinary Medicine.
Not open to students with credit in PTH 551.
Histology of disease. Disturbances of cell growth and metabolism, neoplasia, circulatory changes, inflammation, and neoplasia.
Temporary approval effective from Fall Semester 1992 through Spring Semester 1993.
QA: PTH 550

551. General Pathology Spring, 3(2-2)
R: Completion of 1 semester of the graduate-professional program in the College of Veterinary Medicine.
Not open to students with credit in PTH 550.
Hematology. Pathology of hematopoietic, lymphatic, circulatory, nervous, reproductive, musculoskeletal, endocrine, ocular, and cutaneous systems.

552. Veterinary Clinical Pathology Fall, 3(2-2)
R: Completion of 1 semester of the graduate-professional program in the College of Veterinary Medicine.
Not open to students with credit in PTH 552.
Clinical aspects, principles, and interpretation of laboratory procedures in hematology, chemistry, cytology, and related areas.
Temporary approval effective from Fall Semester 1992 through Spring Semester 1993.
QA: PTH 552

553. Clinical and Systemic Pathology Fall, Spring, Summer. 3(2-2)
R: Completion of 2 semesters of the graduate-professional program in the College of Veterinary Medicine.
Not open to students with credit in PTH 552.
Hematopathology. Pathology of hematopoietic, lymphatic, digestive, urinary, respiratory, integumentary, cardiovascular, nervous, reproductive, musculoskeletal, endocrine, ocular, and cutaneous systems.

559. Special Problems in Pathology Fall, Spring, Summer. 1 to 6 credits.
A student may earn a maximum of 4 credits in all enrollments for this course.
R: Open only to graduate-professional students in College of Veterinary Medicine. Individual directed work on an experimental, theoretical, or applied problem in pathology.
QA: PTH 559

592. Special Problems in Veterinary Pathology Fall, Spring, Summer. 1 to 4 credits.
A student may earn a maximum of 3 credits in all enrollments for this course.
R: Open only to graduate-professional students in College of Veterinary Medicine. Not open to students with credit in PTH 560.
Student works under facility direction on an experimental, theoretical or applied problem.
Temporary approval effective from Fall Semester 1992 through Spring Semester 1993.
QA: PTH 592

608. Pathology Clerkship Fall, Spring, Summer. 1 to 8 credits.
A student may earn a maximum of 12 credits in all enrollments for this course.
R: Open only to graduate-professional students in College of Human Medicine or Osteopathic Medicine. Anatomic and clinical pathology with emphasis on diagnostic techniques. Conducted in pathology departments of affiliated hospitals.
QA: PTH 608

609. Laboratory Medicine Clerkship Fall, Spring. 3 credits.
A student may earn a maximum of 8 credits in all enrollments for this course.
R: Open only to graduate-professional students in College of Human Medicine or Osteopathic Medicine.
Laboratory procedures. Correlation of laboratory data with morphologic abnormalities in patients with altered pathophysiology.
QA: PTH 609

612. Histopathology Clerkship Fall, Spring. 2 credits.
R: Completion of the third year of the graduate-professional program in the College of Veterinary Medicine.
Supervised instruction in the examination and interpretation of histologic lesions caused by animal diseases.
Temporary approval effective from Fall Semester 1992 through Spring Semester 1996.
QA: PTH 612

630. Diagnostic Pathology Clerkship Fall, Spring. 3 credits.
A student may earn a maximum of 6 credits in all enrollments for this course.
P: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
Not open to students with credit in PTH 651 or PTH 652.
Necropsy and surgical and clinical pathology. Interpretation of gross findings and laboratory data.
QA: PTH 630, PTH 652

631. Necropsy Clerkship Fall, Spring. 3 credits.
P: PTH 630.
R: Completion of 5 semesters of the graduate-professional program in the College of Veterinary Medicine.
Supervised necropsy. Interpretation and presentation of findings.

635. Problems in Veterinary Pathology Fall, Spring, Summer. 1 to 3 credits.
A student may earn a maximum of 6 credits in all enrollments for this course.
R: Completion of 5 semesters in the graduate-professional program in the College of Veterinary Medicine.
Approval of department.
Supervised projects involving gross pathology, histopathology, clinical pathology, or molecular pathology.

639. Transfusion Medicine Fall, Spring. 3 credits.
R: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.

654. Veterinary Clinical Pathology Clerkship Fall, Summer. 3 credits.
R: Completion of the third year of the graduate-professional program in the College of Veterinary Medicine.
Not open to students with credit in PTH 630.
Concepts in laboratory interpretation and diagnosis.
Temporary approval effective from Fall Semester 1992 through Spring Semester 1996.
QA: PTH 654

655. Veterinary Necropsy Clerkship Fall, Summer. 3 credits.
R: Completion of the third year of the graduate-professional program in the College of Veterinary Medicine.
Not open to students with credit in PTH 650.
Supervised necropsy and interpretation of findings.
Temporary approval effective from Fall Semester 1992 through Spring Semester 1996.
QA: PTH 655

656. Problems in Veterinary Necropsy Clerkship Fall, Spring. 2 credits.
P: PTH 652.
R: Completion of the third year of the graduate-professional program in the College of Veterinary Medicine.
Not open to students with credit in PTH 651.
Problems in necropsy and interpretation of findings.
Temporary approval effective from Fall Semester 1992 through Spring Semester 1996.
QA: PTH 656