

OSTEOPATHIC MEDICINE

544*. **Integrative Clinical Correlations IV**
Fall. 1(00-02)
P: Unit I courses. C: OST 522, 512, 523

R: College of Osteopathic Medicine students only
A multidisciplinary approach to the application of basic science information and osteopathic principles to the solution of clinical problems.

545*. **Integrative Clinical Correlations V**
Spring. 1(00-02)
P: Unit I courses; OST 544 C: OST 513,

524, 525 R: College of Osteopathic Medicine students only

A multidisciplinary approach to the application of basic science information and osteopathic principles to the solution of clinical problems.

546*. **Integrative Clinical Correlations VI**
Summer. 1(00-02)

P: Unit I courses, OST 545 C: OST 527, 528 R: College of Osteopathic Medicine students only
A multidisciplinary approach to the application of basic science information and osteopathic principles to the solution of clinical problems.

554*. **Systems Biology: Cardiovascular**
Spring. 8(07-02)

P: ANT 551, 553; BCH 551; PSL 501; MPH 551; PTH 542; PHM 563 R: College of Osteopathic Medicine students only
A multidisciplinary study of the cardiovascular system in health and disease.
QA: OST 554

555*. **Systems Biology: Respiratory**
Spring. 5(04-02)

P: ANT 551; PSL 501; MPH 522; BCH 521; PHM 563 C: Clinical Correlations R: College of Osteopathic Medicine students only
Discussion of pulmonary physiology, diagnosis and treatment of clinical pulmonary and ENT disease states, review of anatomy, advanced airway management skills and advanced cardiac life support (ACLS).
QP: ANT 565 PSL 500AMPH 521BCH 502PHM 520 QA: OST 555

PACKAGING PKG

210. **Principles of Packaging**
Fall, Spring, Summer. 3(3-0)

Packaging systems, materials and forms and their relationship to the needs and wants of society.

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 majors.
Testing, evaluating, and predicting package performance under various environmental conditions. Methods of protection against shock, vibration, and other environmental hazards.
QP: PHY 239 MTH 112ORMTH 122 QA: PKG 321 PKG 423

320*. **Plastic and Glass Packaging**
Fall, Spring. 4(3-2)

P: CEM 143, PKG 310. R: Open only to Packaging majors.
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 majors.

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 majors.

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)
P: CEM 141; completion of Tier I writing requirement. R: Not open to freshmen and sophomores.
Effects of packaging on environmental quality. Solid waste. Air and water quality. Laws, economics and energy. Resource use and conservation.
QP: CEM 141 QA: PKG 340

415*. **Packaging Decision Systems**

Fall, Spring. 3(2-2)
P: MTH 110 or MTH 116 R: Junior or above Packaging
Structure and use of decision systems in the packaging function for management, specification, production and testing. Use of microcomputers to support decisions.
QP: MTH 109 ORMTH 111 QA: PKG 467

432*. **Packaging Processes**

Fall, Spring. 4(3-2)
P: PKG 320, PKG 325. R: Open only to Packaging majors.
Integrated study of machines, organization and control of packaging processes. Application of pneumatics, hydraulics and electricity. Interrelationship of product, packaging and machinery.
QP: PKG 331 PKG 332 QA: PKG 430 PKG 425

440*. **Automation in Packaging**

Fall. 3(3-0)
P: MTH 124. R: Not open to freshmen and sophomores.
Automated systems: configurations, components, sensors, drive mechanisms, and control systems. Robotic safety. Material handling, line inspection, vision systems, automated storage and retrieval systems. Economics. Field trips required.
QP: MTH 112 QA: PKG 465

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 331 ORPKG 332 QA: PKG 438

455*. **Food Packaging**

Spring. 3(3-1)
P: PKG 320, 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 332 QA: PKG 455

460*. **Distribution Packaging and Performance Testing**

Spring. 3(2-2)
P: PKG 310.
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 435 PKG 433

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 policy and societal issues.
QP: EC 201 OREC 202 QA: PKG 429

480*. **Packaging Laws and Regulations**

Spring. 3(3-0)
P: PKG 320 or PKG 325.
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 ORPKG 332 QA: PKG 450

485*. **Packaging Systems Development**

Fall, Spring. 3(3-1)
P: PKG 432. R: Open only to Packaging majors.
Package development including selection, design and implementation of package systems for protection, distribution, merchandising, use and disposal.
QP: PKG 423 PKG 425 QA: PKG 428

490*. **Directed Studies in Packaging**

Fall, Spring, Summer. 1 to 3 credits.
May reenroll for a maximum of 6 credits.
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 332 QA: PKG 424

491*. **Special Topics**

Fall, Spring, Summer. 1 to 4 credits.
May reenroll for a maximum of 8 credits.

Selected topics of current interest.

QA: PKG 440

492*. **Senior Seminar**

Spring. 1(2-0)
R: Open only to seniors in Packaging.
Seminar on current packaging issues, business organization and operations, and accepted practices in a corporate environment.
QA: PKG 463

805*. **Advanced Packaging Dynamics**

Spring. 3(2-2)
P: PKG 310
Advanced topics in shock and vibration. Distribution hazards and product fragility. Cushion performance and package design. Environmental measurement and simulation.
QP: PKG 423 QA: PKG 823

815*. **Permeability and Shelf Life**

Spring. 3(2-2)
P: PKG 320, PKG 325, MTH 124 or MTH 132
Relationship between the storage life of packaged food and pharmaceutical products and the gas, moisture, and organic vapor permeability of packages in various environments.
QP: PKG 331 PKG 332MTH 113 QA: PKG 820

PACKAGING

817*. **Instrumental Analysis of Packaging Materials**
 Fall of even-numbered years. 4(3-2)
 P: PKG 320, PKG 325
 Spectrophotometric, chromatographic, thermal and other methods of analysis applied to packaging. Material identification and characterization. Migration and permeation measurements.
 QP: PKG 331 PKG 332 QA: PKG 330

825*. **Polymeric Packaging Materials**
 Fall. 4(3-2)
 P: PKG 320
 Physical and chemical properties of polymeric materials and structures commonly used in packaging and relationships to performance.
 QP: PKG 331 QA: PKG 810

835*. **Experimental Design and Data Analysis in Packaging**
 Summer. 3(2-2)
 R: Graduate students Packaging
 Design of packaging experiments and the use of statistical analysis software for personal computers.

875*. **Stability and Recyclability of Packaging Materials**
 Fall of odd-numbered years. 3(3-0)
 P: PKG 320, PKG 325
 Interactions between packaging materials and their environments, including corrosion, degradation, stabilization, and recycling. Impacts of packaging disposal.
 QP: PKG 331 PKG 332

890*. **Special Investigations in Packaging**
 Fall, Spring, Summer. 1 to 3 credits.
 May reenroll for a maximum of 4 credits.
 R: Graduate students Packaging Approval
 Development of solutions to unique packaging problems.
 QA: PKG 834

891*. **Selected Topics**
 Fall, Spring, Summer. 1 to 4 credits.
 May reenroll for a maximum of 9 credits.
 R: Graduate students
 Topics selected by faculty appropriate to current needs of graduate curriculum.
 QA: PKG 840

899*. **Masters Thesis Research**
 Fall, Spring, Summer. 1 to 8 credits.
 May reenroll for a maximum of 15 credits.
 R: Masters candidates Packaging
 Search for new knowledge in selected area of packaging.
 QA: PKG 899

PARK AND RECREATION RESOURCES PRR

200. **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(3-0)
 R: Not open to freshmen and sophomores.
 The scope and management of recreation services and resources. Historical and philosophical foundations. Influence of recreation behavior on state, national, international, economic, political and social institutions.
 QA: PRR 213

215*. **Recreation Program Management**
 Fall, Spring. 4(3-2)
 R: Not open to freshmen.
 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.
 QA: PRR 215

293*. **Field Work in Park and Recreation Resources**
 Fall, Spring, Summer. 1(4-1) May reenroll for a maximum of 3 credits.
 P: PRR 213, PRR 215 R: Junior and above.
 Professional field experience. Leadership development. Supervision of activity in a park and recreation setting development.
 QA: PRR 403

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

320*. **Human Behavior in Park and Recreation Settings**
 Spring. 3(3-0)
 P: PRR 213, and 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 Communication**
 Fall. 3(3-0)
 P: PRR 213. R: Not open to freshmen.
 Principles of communication 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 PRR 304

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

372*. **Management of Park and Recreation Agencies and Organizations**
 Spring. 4(4-0)
 P: ACC 230, PRR 213, PRR 215. R: Not open to freshmen and sophomores.
 Management and operating concepts and methods. Revenues and cost management, service marketing, staffing and supervision.
 QP: ACC 230 PRR 213 PRR 215 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 303 QA: PRR 384

443*. **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)
 P: PRR 213. 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(3-0)
 P: PRR 351. R: Not open to freshmen and sophomores.
 Orientation, management, and education information systems. Influencing visitor behaviors. Goals and functions of interpretation. Types of services. Nature/visitor center programming and facility design and layout. Historical-cultural interpretation.
 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. Field trips required.
 QP: PRR 362 QA: PRR 467

468*. **Therapeutic Recreation Techniques**
 Spring. 3(3-0)
 P: PRR 467
 Documentation principles. Principles of pharmacology related to therapeutic recreation. Leisure education. Facilitation techniques. Assistive recreation devices. Professional and certification issues.
 QP: PRR 467 QA: PRR 468

473*. **Commercial Recreation and Tourism Enterprises**
 Fall of even-numbered years. 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 202 PRR 384 QA: PRR 470 PRR 471

474*. **Community and Natural Resource Based Tourism**
 Spring of even-numbered years. 3(3-0)
 P: PRR 213 R: Junior or above
 Developing, sustaining and integrating community and natural resource based tourism. Environmental, social and economic considerations. Agencies and organization roles and responsibilities. Impact management. Tourism-based community and rural development