

# School of Pharmacy Professional Electives

For the most current information regarding locations, times and instructors, please review the UW Time Schedule.

## Medicinal Chemistry

### **MEDCH 400 Fundamental Concepts in Medicinal Chemistry (3)**

Principles of physical organic chemistry; chemical bonding, stereochemistry, acids/bases, and reaction mechanisms relevant to processes such as drug distribution, specificity, and metabolism. Successful completion of MEDCH 400 or a satisfactory score on the MEDCH qualifying exam is required to register for the MEDCH 562, 563, and 564 course series. Offered A. Class 1.

### **MEDCH 495 Special Studies in Medicinal Chemistry (\*,max. 6)**

Opportunity to expand the breadth and depth of understanding in specific areas. Credit/no credit only. Prerequisite: permission of instructor (instructor ID code needed to register for the course) Offered AWSpS. Class 1,2,3,4.

### **MEDCH 499 Independent Study/Research (\*,max. 24)**

Research problems in medicinal chemistry. Numerical or credit/no credit option. Prerequisite: cumulative GPA of 2.50 and permission of instructor (instructor ID code needed to register for the course) Offered AWSpS. Class 1,2,3,4.

### **MEDCH 525P Alternative and Complementary Medicines (2)**

Study of popular alternative and complementary medicines used in the United States. Focus on herbal products with some coverage of homeopathic and other non-nutritional dietary supplements. Demonstration of resources for current objective information on these controversial medicines. Credit/no credit only. Offered A. Class 1,2,3,4. Highly recommended in year 1 or 2.

### **MEDCH 535P Diagnostic Medicinal Chemistry (3)**

Examination of clinical diagnostic tests with regard to the chemical or biochemical rationale of the testing method, interpretation of test results, and major factors influencing test values with special emphasis on the effects of medications. Clinical laboratory data from patients considered in light of these factors. Prerequisite: either MEDCH 571, BIOC 406 or equivalent, or permission of instructor. Offered W. Class 2,3,4. Highly recommended in year 2. (Class 1-prerequisites + permission of instructor)

## Pharmaceutics

### **PCEUT 499 Independent Study/Research (1-6, max. 12)**

Research problems in drug disposition, drug targeting, and drug development. Numerical or credit/no credit option. Prerequisite: Cumulative GPA of 2.5 and permission of the instructor (instructor ID code needed to register for the course) Offered AWSpS. Class 1,2,3,4.

### **PCEUT 586 Pharmaceutical Biotechnology (2)**

Current topics in pharmaceuticals and biotechnology focusing on transforming small molecules, proteins, and genes into therapeutic products. Includes new drug therapies, drug design, pharmacogenomics, molecular modeling, production and stability considerations, and delivery systems of protein and gene therapeutics in relation to pharmacokinetic and therapeutic responses. Credit/no credit only. Offered Sp. Class 1,2,3,4.

### **PCEUT 598 Independent Research (\*,max. 24)**

Basic and clinical research problems in drug disposition and effect. Numerical or credit/no credit option. Prerequisite: 2.5 GPA and permission of instructor (instructor ID code needed to register for the course) Offered AWSpS. Class 1,2,3,4.

## Pharmacy

### **PHARM 502 Neonatal Drug Therapy (3)**

Clinical applications of drugs used with acute and chronically ill preterm and term neonates. Review of neonatal pharmacotherapeutics. Examination of selected therapeutic agents in relation to indications, efficacy, therapeutic and adverse effects, monitoring parameters, and dosing principles in the neonate. Offered Sp. Class 3,4. Register Period 2 and 3

### **PHARM 503 Intro to Sr. Care Practicum (2)**

Under faculty supervision, provides clinical services for senior patients in various settings. Includes reviewing charts, interviewing patients, conferring with other health care providers and making recommendations on medication therapies to providers and patients. Prerequisites: successful completion of first five quarters of Pharm. D. curriculum, permission of instructor (need entry code). Offered: Sp. Class 2, CR/NC.

### **PHARM 510 Contemporary Concepts in Clinical Nutrition Support (1)**

Addresses current topics and concepts in clinical nutrition support. Topics include assessment and management of patients requiring specialized nutrition support, enteral nutrition, and parenteral nutrition. Prerequisite: biochemistry, anatomy and physiology, or permission of instructor. Concurrent registration in NUTR 511 required. Offered A. Class 3,4.

**PHARM 513 Medical Devices for Home Health Care (3)** Study of medical devices commonly provided by pharmacists to their patients, including their selection and adaptation for specific patient needs. Lectures include display and demonstration of actual devices. Offered Sp. Class 1,2,3,4.

### **PHARM 516 Introduction to Biomedical Regulatory Affairs (3)**

Surveys government oversight of drugs, devices and biotechnology derived products; laws and regulations that apply to development, testing and production; and responsibilities of a regulatory affairs specialist in the regulatory setting. Offered A. Class 1,2,3,4. Permission of instructor (need entry code).

### **PHARM 517 Product Development and Manufacturing Systems (3)**

Surveys government oversight of drugs, devices, and biotechnology derived products; laws and regulations that apply to development, testing and production. Offered W. Class 1,2,3,4. Permission of instructor (need entry code).

### **PHARM 518 Product Testing, Evaluation and Post-Market Issues (3)**

Medical product post-marketing requirements; reporting and enforcement actions; inspections (internal and by regulators), preparation, conduct and follow-up actions; surveillance and studies; reimbursement and economics. Offered Sp. Class 1,2,3,4. Permission of instructor (need entry code).

**PHARM 520 P-Introduction to Pharmacoeconomics and Outcomes Research (2)** Provides an introduction to economic evaluation and outcomes research related to pharmaceuticals and other healthcare technologies. Covers the methods of cost-effectiveness analysis and quality of life evaluation, and their use in real-world decision-making. Offered: Sp. Class: 1,2,3,4

**PHARM 521 P-Pharmacy Teaching Practicum (1-3)** Allows students opportunity to apply learning about education in a mentored experiences. Students serve as assistant instructors in existing pharmacy courses or engage in other approved educational experiences. Prerequisite: permission of instructor. Offered: AWSp

**PHARM 522 P-The Nature of Scientific Truth (2)**

Drawing on the wisdom of scientists and philosophers, discussion of the nature and limitations of scientific truth, using examples from the practice of pharmacy whenever possible. Emphasizes reasoning errors that are common in science, particularly those that involve the application of scientific information to clinical practice. Credit/no credit only. Offered A. Class 1,2,3,4.

**PHARM 523 Survey of Biomedical Regulatory Affairs (3)**

Overview of the knowledge, terminology, and skills necessary to be an effective regulatory affairs or compliance specialist in the design, development, testing and production of drugs, biotechnology-derived therapeutics, and medical devices. A class project is required. Offered: Sp even years. Class 1,2,3,4.

**PHARM 524 P-Institutional and Healthcare Systems Pharmacy Practice (2)**

Presentation of topics regarding current contemporary institutions of pharmacy practice. Discussion of new systems technology, home care programs, managed care, computer applications, budgeting, formulary systems, drug information services, intravenous admixture programs, quality assurance process, and patient oriented services. Offered W. Class 1,2,3,4.

**PHARM 525 P-Advanced Compounding Skills (1)**

Prepares the student to create unique, patient-specific pharmaceutical dosage forms used in contemporary pharmacy practice. Includes pre-readings and assignments, a didactic session and a laboratory session, and is offered over a weekend. Credit/no credit only. Prerequisite: PCEUT 531. Offered A. Class 2,3,4. Offered Sp. Class 1,2,3,4.

**PHARM 529 P-Experiential Learning (1-6, max. 12)** Under faculty supervision, pharmacy students gain experience working on advanced practice projects, in a pharmacy practice setting, prior to the final year of the pharmacy program. Credit/no credit only. Prerequisite: satisfactory completion of the first quarter of pharmacy school.

**PHARM 530 P-Pharmacy and Women's Health (2)** Participants gain an overview of the specific up-to-date knowledge of gender-based medicine; an understanding of the implications of gender-based biology and the opportunity to evaluate new research that has implications for the prevention and management of diseases and conditions in women. Credit/no credit only. Offered Sp. Class 1,2,3,4. 1<sup>st</sup> year students have priority.

**PHARM 531 P-Pharmacy-Based Screening and Immunization Programs (1)**

Practical training in cholesterol, hypertension, bone density, and wellness assessment techniques, vaccine administration and management, and implementation of community-based public health programs. Following didactic and laboratory sessions students conduct screening and administer vaccines at community locations. Offered following the first professional year. Credit/no credit only. Prerequisite: MEDCH 561. Offered: A-no longer offered after Aut 2009. Class 2,3,4.

**PHARM 532 Methods in Pharmaceutical Policy Analysis (4)**

Introduction to the tools used in and the framework and dominant contexts for pharmaceuticals policy development and analysis. Methods reviewed in a series of sessions presenting a specific method and case analyses involving pharmaceuticals development. Project and in-class presentation required. Prerequisite: Class 4 or permission of instructor. Sp odd years.

**PHARM 533 Pharmacoepidemiology (3)**

Overview of pharmacoepidemiology including drug development and approval; application of epidemiologic methods to study drug safety and effectiveness; exploration of the interplay between research and public policy; introduction to resources for information about drugs; introduction to pharmacology principles pertinent to pharmacoepidemiology. Prerequisite: Graduate student or with permission. Offered: jointly with EPI 533; Sp even years.

**PHARM 534 Economic Evaluation in Health and Medicine (3)**

Methods and techniques for evaluating costs and cost-effectiveness of health, medical, and pharmaceutical interventions. Emphasis on economic evaluation, decision analysis, and modeling techniques for resource allocation and decision making. Applications to technology assessment, health policy, clinical practice, and resource allocation. Offered: jointly with HSERV 583. Offered A. Class 3,4 with permission of instructor(entry code needed).

**PHARM 535 Evaluating Cost and Outcomes in Health and Medicine (3)**

Concepts and methods for developing and using patient-reported outcomes in health and medicine. Emphasis on patient self-reported health status and quality of life. Qualitative research and psychometric methods applied to health outcomes assessment and all applications. Prerequisite: Permission of instructor. Offered: jointly with PHARM 535. Winter Quarter. Class 3,4 with permission of instructor (entry code needed).

**PHARM 538 P-Chemical Dependency Issues in Practice (3)**

Emphasis on drug classes, pharmacologic management of abstinence and withdrawal, drug testing, drug use in pregnancy, treatment options and recovery, codependency and legal and ethical considerations. Credit/no credit only. Prerequisite: PHARM 537 Offered W. Class 2,3,4.

**PHARM 542 P-Managed Care Pharmacy: Principles and Practice (3)**

Surveys the activities, tactics, and strategies used by managed care to deliver pharmacy services to their members. Includes: formulary development, clinical improvement programs, quality improvement measures, regulatory activities, contracting with pharmaceutical manufacturers, network management, financial issues, sales and market, and provider relations. Offered Sp. Class 2,3,4.

**PHARM 544 Survey of Pharmacy Laws (1)**

Discuss, present responses to assigned questions developed by faculty regarding laws governing pharmacy practice in the course of reviewing for the Multistate Pharmacy Jurisprudence Examination. Class meets for two consecutive Saturdays in February and March. E-mail and web-access required. Non-matriculated students by permission only. Credit /no credit only. Class 4 or UW Educational Outreach/Shared Access. Offered: W.

**PHARM 549 Pharmacotherapeutics for Older Adults (3)**

Clinical application of drug knowledge in the treatment of disease in older adults with multiple comorbidities. Application of age-related changes in pharmacokinetics and pharmacodynamics in the selection and monitoring of drug regimens of older adults. Emphasis on problem solving, using case examples. Prerequisite: PHARM 560, PHARM 561 or permission of instructor. Offered Sp. Class 3,4.

**PHARM 550 Current Topics in Geriatric Pharmacotherapy (1)**

Review primary medical literature to discuss contemporary issues related to geriatric pharmacotherapy. Credit/no credit only. Prerequisite: PHARM 509 or permission of instructor. Offered W. Class 3,4.

**PHARM 566 P-Applied Pharmacokinetics (2)**

Pharmacokinetics of specific drugs. Influence of age, weight, sex, and disease states on patient-specific dosage regimens emphasized. Advanced kinetic concepts are discussed and put into applied context. Prerequisite: PCEUT 532. Offered Sp. Class 2,3,4 (Highly recommended in year 2 or 3).

**PHARM 567 P-Cancer Pharmacotherapeutics (2)**

Pharmacotherapy of cancer, covering supportive care (antibiotics, antiemetics, analgesics, nutrition) and the antineoplastic agents themselves. Specialists in each area serve as guest lecturers. Offered W. Class 3,4.

**PHARM 569 P-Fluid and Electrolytes and Parenteral Nutrition (2)**

Principles of fluid and electrolyte therapy, including saline, water, and acid-base balance, carbohydrate, protein, lipid, vitamin, and mineral requirements in parenteral nutrition. Nutritional assessment, complications of parenteral nutrition, stability and compatibility of intravenous solutions, modifications of parenteral nutrition in pediatrics and specific disease states are also covered. Offered Sp. Class 3,4.

**PHARM 570 P-Critical Care Pharmacotherapeutics (2)**

Overviews pharmacotherapeutic topics for patients in the critical care setting. Discusses principles in hemodynamic monitoring, respiratory management, concepts in pathophysiology related to critical illnesses, and other timely topics reflecting current clinical practice.

Prerequisite: 3rd-year PharmD student, or approval by instructor. Offered Sp.

**PHARM 571 P-Current Topics in Acute Care Pharmacotherapy (1)** Increase understanding and stimulate discussion in the current topics related to acute care pharmacotherapy. Students have opportunities to review the management of patients in the acute care setting through current cases presented by the instructors. Emphasizes interactive learning. May be taken alone or concurrently with PHARM 570. Class 3,4.

**PHARM 578 Advanced Elective Practicum (1-10, max. 20)**

Faculty-supervised practicums either in areas of traditional practice or in innovative practice plans designed by faculty and student. Objectives, activities, schedules, and lengths are site- and preceptor- specific. Entry code required/ Credit/no credit only. Offered A/WSp. Class 4.

**PHARM 580 P-Case Studies in Pharmaceutical Care (3, max. 9)**

Small groups of students work with an instructor to review cases illustrating various aspects of specific diseases: pathophysiology, clinical features, psychosocial factors, therapeutic interventions with emphasis on drug therapies, and community resources. Analytic reasoning, self-study skills, and knowledge are emphasized. Offered W. Class 2,3,4 or permission of instructor (entry code needed).

**PHARM 581 P-Global Health Pharmacy: Medicines, Practice and Policy (2)**

Introduces the critical role of pharmaceuticals in addressing the major diseases, such as HIV/AIDS, malaria, tuberculosis, affecting person in resource-limited settings. Multidisciplinary faculty address the wide range of relevant issues, including burden of disease, human resource capacity, regulation, drug safety/pharmacovigilance, drug distribution, pharmacoconomics, financing, intellectual property, and drug trade policies. Credit/no credit Offered W.

**PHARM 582 P-Special Topics in Global Health Pharmacy and Medical Products (1-3, max. 6)**

Provides in-depth instruction on selected special topics relating to the use, access to, and impact of pharmaceuticals, vaccines, and diagnostics/medical devices in global health. Credit/no credit only. Offered Sp.

**PHARM 588 Diabetes Care (2)**

Further develops foundations in the principles of diabetes management and provide practice in application of diabetes care principles. Develops their knowledge and ability to assess, manage, educate and monitor patients with diabetes. Credit/No Credit. Offered W.

**PHARM 591 Community Collaborations in Healthcare (2, max 8)**

Faculty and students collaborate with representatives from the Salvation Army ARC and other community sites to improve health literacy and health outcomes of men and women residents/patients in addiction recovery. Credit/no credit Offered A/WSp. Class 1,2,3,4. Entry Code Required. Contact Micki Kedzieski at [kedzm@u.washington.edu](mailto:kedzm@u.washington.edu)

**PHARM 595 Special Studies in Pharmacy (1-6, max. 24)**

Special studies of professional topics in pharmacy. An opportunity to expand the breadth and depth of understanding in specific pharmaceutical areas. Students may undertake independent study under the individual direction of a faculty member. Credit/no credit only. Prerequisite: permission of instructor (instructor ID code needed to register for the course) Offered AWSpS Class 1,2,3,4. Credit/No Credit or numerically graded.

**PHARM 596 Seminars in Pediatric Pharmacotherapy (2)** Overview of drug disposition and medication utilization as it applies to the pediatric patient. Specific emphasis on neonatology and ambulatory pediatrics. Credit/no credit only. Prerequisite: third-year Pharm.D. student or permission of instructor. W.

**PHARM 598 Case Conference: Geriatrics (1)**

Students taking geriatric pharmacy clerkships in various clinical settings meet with faculty to present case studies of elderly patients requiring complex drug therapies. Credit/no credit only. Prerequisite: Geriatric Certificate program student or permission of instructor Offered AWSpS Class 4.

**PHARM 599 Independent Study/Research (1-6, max. 24)**

Applied pharmaceutical research problems. Credit/no credit only. Prerequisite: permission of instructor (instructor ID code needed to register for the course) Offered AWSpS. Class 1,2,3,4.

**Note:**

**Courses are subject to change upon action of the Curriculum Committee and may not be offered every quarter. Please consult the Time Schedule for the most current information.**