

Professional Physical Therapy Curriculum

First Professional Year		A	S
PT 503 Physical Therapy and Health Care System	4	-	
PT 510 Applied Clinical Anatomy	5	-	
PT 516 Movement System Exam and Evaluation	6	-	
PT 519 Musculoskeletal Management I	-	5	
PT 520 Development Through the Life Span	-	3	
PT 526 Foundational Skills and Interventions	4	-	
PT 527 Electrophysiological Testing and Interventions	-	2	
PT 529 Biomechanics	4	-	
PT 530 Clinically Applied Exercise Physiology	-	4	
PT 536 Neurosciences for the Health Professions	-	5	
PT 560 Clinical Reasoning I	-	1	
PT 582 Clinical Experience I	-	1	
Total		23	21

Summer Session	Credits
PT 587 Clinical Internship I	4

Second Professional Year		A	S
PT 525 Clinical Medicine I	2	-	
PT 561 Research in Physical Therapy	2	-	
PT 562 Scholarly Project I	1	-	
PT 563 Cardiopulmonary Physical Therapy	3	-	
PT 565 Physical Therapy for Children	2	-	
PT 567 Neurorehabilitation I	3	-	
PT 568 Neurorehabilitation II	-	2	
PT 569 Musculoskeletal Management II	5	-	
PT 572 Practice and Administration	-	2	
PT 573 Musculoskeletal Management III	-	3	
PT 576 Clinical Reasoning II	-	1	
PT 578 Physical Therapy for Select Populations	-	6	
PT 588 Clinical Internship II	-	4	
PT 671 Scholarly Project II	-	1	
Total	18	19	

Summer Session	Credits
PT 589 Clinical Internship III	5

Third Professional Year		A	S
PT 626 Clinical Medicine II	3	-	
PT 627 Prevention, Wellness, and Education	2	-	
PT 672 Research in Physical Therapy II	2	-	
PT 570 Psychology of Illness and Disability	2	-	
PT 676 Reasoning III	3	-	
PT 679 Trends in Clinical Practice (may be repeated)	4	-	
PT 680 Clinical Internship IV	-	12	
Total	16	12	

Seven credits of professional elective course work are required for the D.P.T. These may be satisfied by PT 671, 672, 679 sections or courses outside the school. Only 6 credits may be independent study.

Total credits required for graduation: 118

Transitional D.P.T. Curriculum

The mission of the transitional Doctor of Physical Therapy (tDPT) curriculum is to provide an affordable, practical, and career-enhancing plan of study that allows licensed physical therapists to transition their current entry-level professional degree to the Doctor of Physical Therapy degree. The program of study offers licensed physical therapists with an academic degree in Physical Therapy the opportunity to earn the Doctor of Physical Therapy (DPT) degree. The focus of the program is to bridge the gap between current DPT and prior degree entry-level expectations. The program is delivered in a distance-education format, although students are required to attend a weekend during the course of study for a two-day seminar in concepts of professionalism in an autonomous profession and other requirements as identified in the program of study.

Admission Requirements

Applicants must:

- . Provide evidence of being currently licensed to practice physical therapy;
- . Complete an admission application supplied through the School of Physical Therapy and Rehabilitation Science at The University of Montana;
- . Provide evidence of an entry-level degree in physical therapy from an accredited institution, along with official transcripts;
- . For those in the MS program, provision of official transcripts of an advanced degree (MS or higher) from an accredited institution in a relevant field of study;
- . For students graduating from a foreign institution, certification of entry-level equivalence through an approved credentialing agency, such as the Foreign Credentialing Commission on Physical Therapy (FCCPT). For more information on the FCCPT visit <http://www.fccpt.org>;
- . If requested, demonstration of ability to function with excellence in the discipline through submission of a writing sample (if requested upon review of the tDPT application) or alternate assessment, as requested;
- . Agree to the program of study in the School of Physical Therapy and Rehabilitation Science prior to matriculation. The admissions committee will review the application and transcript(s) to ensure compliance with entry-level accreditation requirements for the DPT degree. Credits earned in the tDPT curriculum in combination with those previously earned in the professional phase of entry-level preparation and other relevant coursework must be commensurate with the requirements for completion of the entry-level DPT degree awarded at The University of Montana.

Important note for foreign applicants: Granting of the DPT degree upon successful completion of the tDPT curriculum by The University of Montana **does not convey a license to practice** in the United States, which is required by law. To better understand regulations to practice in the United States, visit the Federation of State Boards of Physical Therapy (<http://www.fsbpt.org>).

Minimum Grade and Academic Progression Requirements

Students must receive a minimum grade of C in all tDPT courses. Students who receive a grade of C- or lower must repeat the course to achieve a grade of B or better to pass the course. Repetition of courses will result in additional tuition charges. Students must achieve a grade point average of 2.5 or greater in the prescribed program of study to graduate from the tDPT curriculum. Only the grades within the tDPT curriculum will be included in the calculation of the GPA. Failure to maintain a 2.5 GPA for two semesters will result in dismissal from the tDPT curriculum.

Degree Requirements

For candidates holding an entry-level master's degree, successful completion of a 20 credit core curriculum that includes:

Semester One

PT 652 Pharmacology in Rehabilitation (2 cr.)
PT 654 Clinical Decision Making: Guide to PT Practice (1cr)

Semester Two

PT 653 Legal and Ethical Issues for PTs (1 cr.)
PT 655 Business and Marketing (2 cr.)

Semester Three

PT 656 Coding and Reimbursement (1 cr.)
PT 651 Medical Imaging and Rehabilitation (2 cr.)
PT 657 Professionalism: The Doctoring Profession (2 cr.)

Semester Four

PT 650 Screening for Medical Disorders (2 cr.)

PT 658 Critical Assessment and Application of Best Evidence(3 cr.)

Semester Five

PT 659 Capstone Project (4 cr.)

For bachelor's candidates, semesters 1-4 are the same as above; semester 5-7 are as follows:

Semester Five

PT 660 Management of Patients with Musculoskeletal Disorders (2 cr.)

PT 661 Management of Patients with Cardiovascular and Pulmonary Disorders (2 cr.)

Semester Six

PT 662 Management of Patients with Neurological Disorders (2 cr.)

PT 663 Management of Patients with Integumentary Disorders (2 cr.)

Semester Seven

PT 664 Wellness and Health Promotion (2 cr.)

PT 659 Capstone Project (4 cr.)

Candidates unable to complete PT 659 by the course completion date will receive an incomplete grade. The incomplete must be resolved within one month of receipt; otherwise a failing grade will be issued and the course must be repeated with an additional tuition charge.

Courses

U = for undergraduate credit only, UG = for undergraduate or graduate credit, G= for graduate credit. R after the credit indicates the course may be repeated for credit to the maximum indicated after the R. Credits beyond this maximum do not count toward a degree.

Physical Therapy (P T)

G 503 Physical Therapy and the Health Care System 4 cr. Offered autumn. An introduction to physical therapy and its relationship to the health care system. Topics include introduction to the PT literature, medical terminology, medical records, communication, ethics, and professional issues in physical therapy.

G 510 Applied Clinical Anatomy 5 cr. Offered autumn. Prereq., course in human anatomy or comparative vertebrate anatomy. Anatomy of the neuromusculoskeletal system and body cavities in relation to movement and function with clinical correlates. Course lab fee.

G 516 Movement System Examination and Evaluation 6 cr. Offered autumn. Coreq., PT 510, 529. Principles of musculoskeletal examination and evaluation including basic tissue pathology, patient interviews, palpation, measurement of ROM, strength, and joint play assessment.

G 519 Musculoskeletal Management I 5 cr. Offered spring. Prereq., PT 510, 516, 529. Coreq., PT 530. Principles of musculoskeletal examination, evaluation, and intervention including acute injury management, postural assessment, application of analytical skills, and biomechanical principles to human movement.

G 520 Development Through the Life Span 3 cr. Offered spring. Presentation of developmental and physiological changes of humans as they progress through the lifespan. Includes the identification of developmental milestones and disorders as well as functional changes associated with aging.

G 525 Clinical Medicine I 2 cr. Offered autumn. Pathology, differential screening, pharmacotherapeutics, evaluation and management of oncological, immunological, and hematological disease.

- G 526 Foundational Skills and Interventions 4 cr.** Offered autumn. Coreq., PT 510, 516. Basic skills of transfers, bed mobility, gait assistive device use, soft tissue mobilization, and application of physical agents
- G 527 Electrophysiological Testing and Interventions 2 cr.** Offered spring. Physiology, indications, contraindications, and application of electrotherapy. Theory and application of electrodiagnostic and electrotherapeutic procedures.
- G 529 Biomechanics 4 cr.** Offered autumn. Coreq., PT 510. Principles of biomechanics and application to physical therapy.
- G 530 Clinically Applied Exercise Physiology 4 cr.** Offered spring. Prereq., PT 510. Application of exercise physiology principles and methods to physical therapy practice, lectures and labs focused on therapeutic exercise testing and prescription. Basic principles and application of Proprioceptive Neuromuscular Facilitation (PNF).
- G 536 Neurosciences for the Health Professions 5 cr.** Offered spring. Anatomy of the head and neck, and neuroanatomy of the human nervous system with emphasis on evaluation of central nervous system lesions and pathological conditions, clinical applications to physical therapy.
- G 560 Clinical Reasoning I 1 cr.** Offered spring. Introduction to the clinical reasoning process in physical therapy, faculty research and scholarship options, and laboratory orientation.
- G 561 Research in Physical Therapy 2 cr.** Offered autumn. Prereq., STAT 216 (MATH 241). Research design and statistical analyses in physical therapy and related sciences.
- G 562 Scholarly Project I 1 cr.** Offered autumn. Directed research with individual faculty advisor to develop proposal for research/special project.
- G 563 Cardiopulmonary Physical Therapy 3 cr.** Offered autumn. Prereq., PT 510, 516, 530. Cardiovascular and pulmonary pathology, pharmacology, and differential diagnosis. Physical therapy assessment and interventions for patients with cardiovascular and/or pulmonary disease.
- G 565 Physical Therapy for Children 2 cr.** Offered autumn. Prereq., PT 520, PT 536. Evaluation and intervention of neuromotor and musculoskeletal physical therapy rehabilitation of children. Physical therapy for children in school systems.
- G 567 Neurorehabilitation I 3 cr.** Offered autumn. Prereq., PT 536. Neurologic physical therapy assessment and intervention of adults with cerebrovascular accidents, Parkinson disease, or multiple sclerosis. Motor control and motor learning and application to physical therapy neurorehabilitation. Includes wheelchair and home assessment.
- G 568 Neurorehabilitation II 2 cr.** Offered spring. Prereq., PT 536. Neurologic physical therapy assessment and intervention of adults with traumatic brain injury or spinal cord injury.
- G 569 Musculoskeletal Management II 5 cr.** Offered autumn. Prereq., PT 510, 516, 519, 529, 530. Principles of musculoskeletal examination, evaluation, and intervention for the hip, knee, ankle, foot, and lumbar spine.
- G 570 Psychology of Illness and Disability 2 cr.** Offered autumn. Psychological response to illness and disability to include patient motivation, patient/professional interaction, and treatment of persons with chronic pain.
- G 572 Practice and Administration 2 cr.** Offered spring. Organization and management of the physical therapy department with emphasis on the therapist's role as administrator, supervisor and consultant.
- G 573 Musculoskeletal Management III 3 cr.** Offered spring. Prereq., PT 510, 516, 519, 529, 530. Principles of musculoskeletal examination, evaluation, and intervention for the elbow, wrist, hand, thoracic and cervical spine.
- G 576 Clinical Reasoning II 1 cr.** Offered spring. Synthesis and analysis of PT evaluation and intervention through case reports.

G 577 Applied Clinical Teaching in Physical Therapy 1-2 cr. Offered autumn. Teaching experience in practical application of clinical therapy.

G 578 Physical Therapy for Select Populations 6 cr. Offered spring. Prereq., PT 510, 516, 529, 530. Physical therapy assessment and interventions are addressed in the areas of occupational health, pregnancy and pelvic floor dysfunction, wound management, prosthetic management, and a variety of other specific populations.

G 582 Clinical Experience 1 cr. Offered spring. Clinical experience in physical therapy clinics. Only CR/NCR grading.

G 587 Clinical Internship I 4 cr. Offered summer. Prereq., successful completion of all first-year DPT courses. Seven weeks of full-time clinical experience with emphasis on developing patient treatment skills. Only CR/NCR grading.

G 588 Clinical Internship II 4 cr. Offered spring. Prereq., PT 587 and successful completion of year two DPT Autumn semester courses. Five weeks of full-time clinical experience with emphasis on patient evaluation and continuation of developing patient treatment skills. Only CR/NCR grading.

G 589 Clinical Internship III 5 cr. Offered summer. Prereq., PT 588 and successful completion of second year DPT courses. Eight weeks of full-time clinical experience with emphasis on learning about administrative issues, problem solving, time management, and communication skills. Continuation of development of patient treatment and evaluation skills. Only CR/NCR grading.

G 594 Seminar Variable cr. (R-6) Offered autumn and spring.

G 595 Special Topics Variable cr. (R-4) Offered autumn and spring. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

G 626 Clinical Medicine II 3 cr. Offered autumn. Prereq., PT 525. Pathology, differential screening, pharmacotherapeutics, evaluation and management of integumentary, gastrointestinal, endocrine and urogenital disease. Also address abdominal screens and primary care delivery.

G 627 Prevention, Wellness, and Education 2 cr. Offered autumn. Nutrition, health promotion, patient and support network education, exercise/fitness, disease and injury prevention, life span emphasis.

G 628 Physical Therapy Student Clinic 1 cr. Offered autumn and spring. Open to 2nd and 3rd year DPT students. Supervised service learning experience for students providing physical therapy rehabilitation and wellness activities to individuals without health insurance.

G 650 Screening for Medical Disorders 2 cr. Offered autumn, spring. Prereq. Enrolled in t-DPT curriculum. PT's role, responsibilities, and decision-making processes regarding appropriate referral of a patient to a physician for evaluation of medical conditions outside the scope of physical therapy.

G 651 Medical Imaging and Rehabilitation 2 cr. Offered autumn, summer. Prereq. Enrolled in t-DPT curriculum. Provide the physical therapy clinical learner with the tools needed to interpret and apply specialized medical imaging information to the rehabilitation patient.

G 652 Pharmacology in Rehabilitation 2 cr. Offered autumn, spring. Prereq. Enrolled in t-DPT curriculum. Provide clinical learners with the primary drug classes and the physiologic basis of their action.

G 653 Legal and Ethical Issues for Physical Therapists: Considerations in Risk Management 1 cr. Offered spring, summer. Prereq. Enrolled in t-DPT curriculum. Foundational information as to the legal, ethical and administrative decision making process often facing physical therapists in clinical practice.

G 654 Clinical Decision Making: Guide to Physical Therapist Practice 1 cr. Offered autumn, spring. Prereq. Enrolled in t-DPT curriculum. Provide ways to utilize the Guide to PT Practice for effective and efficient clinical

decision making.

G 655 Business and Marketing 2 cr. Offered spring, summer. Prereq. Enrolled in t-DPT curriculum. Enhance the PT clinical learner's appreciation of business and management practices needed to succeed within the current healthcare landscape.

G 656 Coding and Reimbursement 1 cr. Offered autumn, summer. Prereq. Enrolled in t-DPT curriculum. Educate the clinical learner in analyzing reimbursement of current billing, accounts receivable, collection procedures and use of proper coding.

G 657 Professionalism: The Doctoring Profession 2 cr. Prereq. Enrolled in t-DPT curriculum. This seminar course provides the clinical learner with the opportunity to analyze and discuss the roles/responsibilities and challenges/opportunities inherent in doctoral level physical therapy practice. Only CR/NCR grading.

G 658 Critical Assessment and Application of Best Evidence 3 cr. Offered autumn, spring. Prereq. Enrolled in t-DPT curriculum. Develop skills in the application of evidence-based practice as a model for effective clinical decision-making.

G 659 Capstone Project 4 cr. Prereq. Enrolled in t-DPT curriculum. Development of the skills needed by physical therapists to fulfill their role as effective participants in the research process. Guide student through the capstone case report completion process. Only CR/NCR grading.

G 660 Management of Patients with Musculoskeletal Disorders 2 cr. Offered autumn, spring, summer. Prereq., enrolled in t-DPT curriculum. PT's role, responsibilities, and decision-making processes regarding patients with musculoskeletal disorders.

G 661 Management of Patients with Cardiovascular and Pulmonary Disorders 2 cr. Offered autumn, spring and summer. prereq., Enrolled in t-DPT curriculum. PT's role, responsibilities and decision-making processes regarding appropriate patient management of persons with cardiovascular and/or pulmonary disorders.

G 662 Management of Patients with Neurological Disorders 2 cr. Offered autumn, spring, summer. Prereq., enrolled in t-DPT curriculum. PT's role, responsibilities, and decision-making processes regarding patients with neurological disorders.

G 663 Management of Patients with Integumentary Disorders 2 cr. Offered autumn, spring, summer. Prereq., Enrolled in t-DPT curriculum. PT's role, responsibilities, and decision-making processes regarding patients with integumentary disorders.

G 664 Wellness and Health Promotion 2 cr. Offered autumn, spring, summer. Prereq., Enrolled in t-DPT curriculum. PT's role, responsibilities, and decision-making processes regarding patient/client involvement with wellness and health promotion.

G 671 Research in Physical Therapy I 1 cr. Offered spring. Prereq., DPT student. Data collection for research/special project.

G 672 Research in Physical Therapy II 2 cr. Offered autumn. Data analysis, writing of research manuscript, presentation of project.

G 676 Clinical Reasoning III 3 cr. Offered autumn. Course addresses elements of clinical mastery, professional development, career options, ethics and patient advocacy. Each student develops and presents a case report and provides peer review and feedback.

G 679 Trends in Clinical Practice 1-2 cr. (R-4) Seminar sections that focus on advanced clinical topics in physical therapy. . Traditional or CR/NCR grading as determined by instructor.

G 680 Clinical Internship IV 12 cr. Prereq., PT 589 and successful completion of all autumn semester 3rd year DPT

coursework. Custom-designed clinical internship of 15 weeks. Includes writing and presentation of case study or special project. Only CR/NCR grading.

G 690 Research 1-10 cr. (R-10) Prereq., consent of instr. Traditional or CR/NCR grading as determined by instructor.

G 691 Special Topics/Experimental Course Variable cr. (R-6) Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics. Traditional or CR/NCR grading as determined by instructor.

G 692 Independent Study 1-4 cr. (R-6) Prereq., consent of instructor. Traditional or CR/NCR grading as determined by instructor.

G 694 Seminar/Workshop Variable cr. (R-6) Traditional or CR/NCR grading as determined by course instructor.

G 699 Thesis/Dissertation 1-10 cr. (R-10) Offered every term. Only CR/NCR grading.

Faculty

Professors

Reed Humphrey, Ph.D., University of Pittsburgh, 1986; P.T., Virginia Commonwealth University, 1994 (Chair)

Beth Ikeda, M.S., D.P.T., Massachusetts General Hospital Institute of Health Professions, 1989, 2004, P.T., Mayo School of Health Related Science, 1981

Charles Leonard, Ph.D., Medical College of Pennsylvania, 1985; P.T., Duke University, 1978

Associate Professor

James J. Laskin, Ph.D., University of Alberta, 2001; P.T., University of Saskatchewan, 1987

Assistant Professors

Anthony Kinney, D.P.T., Washington University, 2008; MBA Duke University, 2008; New York Medical College, MSPT, 2002

David L. Levison, M.H.S., Indianapolis Krannert School of Physical Therapy, 1996; P.T., University of Montana, 1986

Ryan Mizner, Ph.D., University of Delaware, 2005; P.T., University of Delaware, 2000

Alex Santos, Ph.D., Pennsylvania State University, 2008; P.T., State University of Londrina (BR), 1998

Nora Staael Evert Physical Therapy & Rehabilitation Clinics

UM Sports & Orthopedics, Neurology & the New Directions Wellness Center

Director: Susan Ostertag, D.P.T., Arizona School of Health Sciences, 2007, B.S., P.T., University of Montana, 1993

Brenda Mahlum, D.P.T., Rocky Mountain University of Health Professions, 2006; P.T., University of North Carolina, 1984

Mary Coar, B.S., P.T., The University of Montana, 1993

Molly Blair, B.S., University of Montana, 2002

Pre-Medical Sciences

Diana I. Lurie (Professor of Biomedical and Pharmaceutical Sciences)

Health care continues to be one of the most rapidly expanding areas of our society. Careers in the health professions

have expanded, both in numbers and in the variety of opportunities. The rewards of a career in health care include excellent salaries, stability of employment, geographic mobility, and the opportunity to help other people. The pre-medical sciences program is an advising program that helps students become well-informed, well-prepared applicants to programs in allopathic medicine, chiropractic medicine, dentistry, naturopathic medicine, optometry, osteopathic medicine, physician assistant, podiatry and veterinary medicine.

The Pre-Medical Sciences Program does not lead to a bachelor's degree. The Pre-Medical coursework will help students to gain admission to a professional school or program while completing a degree in a field of study. Students may select any major as a field of study, but specific pre-professional courses must be completed. When selecting a major, remember that a science major is not required for admissions into professional schools. It is more important to perform well in your chosen major. Professional schools are most concerned with the overall quality, scope and difficulty of undergraduate work rather than the major.

Pre-professional courses are designed to provide a strong foundation in the sciences, highly developed communicative skills and a solid background in the social sciences and humanities. Curriculum guides outlining minimal course requirements established by professional schools are available from the Pre-medical Sciences office. The Pre-Medical Sciences Program also offers students the opportunity to interact with several pre-med advisors in addition to their advisor for their major.

The minimal requirements for professional school should be completed by the end of the third year of study or prior to taking the admission test required by professional schools. Since specific subject requirements vary among institutions, students should discuss their academic plans with their Pre-medical Sciences advisor. Individuals with weak math and science preparation should consider a five year undergraduate program beginning with remedial courses in math, English, and reading skills.

Admission to a professional school is very competitive. Students must maintain a B-plus grade-point average in college if they expect to be admitted. All required courses must be taken for letter grades. In addition, the applicant must score well on the appropriate professional admissions test. These tests are designed to measure basic academic ability in the natural sciences, reading ability and problem solving skills. These examinations are usually taken during the junior year.

Besides academic accomplishments and admission exam scores, acceptance by a professional school is also dependent upon letters of recommendation and personal interviews conducted by the professional school. It is important that students consult with a Pre-medical Sciences advisor and with an academic advisor in their major each year to make sure that they can satisfy the necessary requirements for graduation within the time available. The Pre-Medical Sciences Director will also discuss procedures, advise and assist the student during the process of applying to a professional school.

High School Preparation: High school students contemplating a career in the health professions should have three to four years of mathematics, courses in chemistry and physics and considerable background in literature and social science.

School of Public and Community Health Sciences

- . Special Degree Requirements
- . Courses
- . Faculty
- .

Craig Molgaard, Professor and Chair

[This section of the catalog was edited after the catalog was published. Updated July 26, 2012.](#)

The School of Public and Community Health Sciences is a multi-disciplinary program that offers the Master of Public Health (M.P.H.) degree and a Certificate of Public Health (C.P.H.). The program is designed to prepare individuals for

public health practice who can effectively address the challenges of rural and global health. Predominantly on-line, web-based instruction allows both traditional students and working professionals to pursue a degree or certificate. This program addresses current and forecasted needs for graduate education in public health. The program's focus on rural and global population health problems assists in promoting improvement in the health of the people of Montana and throughout the world.

Special Degree Requirements

For the M.P.H. degree, all students must successfully complete 42 graduate credits, including 36 required core credits and 6 elective credits. The following core courses are required:

- . PUBH 510 Introduction to Epidemiology or PUBH 511 History and Theory of Epidemiology
- . PUBH 520 Fundamentals of Biostatistics
- . PUBH 530 Administration and Management in the U.S. Health Care System
- . PUBH 535 Health Policy
- . PUBH 540 Social and Behavioral Sciences in Public Health
- . PUBH 550 Program Evaluation and Research Methods
- . PUBH 560 Environmental and Rural Health
- . PUBH 570 Ethical Issues in Public Health
- . PUBH 580 Rural Health Issues in a Global Context
- . PUBH 591 Practicum
- . PUBH 593 Professional Portfolio
- . PUBH 599 Professional Paper

M.P.H. students may take 6 or more elective credits of courses offered from the School of Public and Community Health Sciences or from other departments in order to create a plan of study that tailors the learning experience to the needs of the student. PUBH elective courses include:

- . PUBH 512 Neuroepidemiology
- . PUBH 515 Public Health Genetics
- . PUBH 521 Leadership in Public Health
- . PUBH 525 Native American Public Health
- . PUBH 595 Special Topics
- . PUBH 596 Independent Study
- . PUBH 597 Research
- . ~~PUBH 594 Workshop in Public Health~~

For the Certificate of Public Health, students must complete any 12 pre-approved credits from the above list of core courses. Approval of a specific 12 credit program is part of the Certificate of Public Health admission process.

~~Beginning Fall of 2012, Students may also choose a 12-unit Certificate in Public Health and Disability which requires a seminar in public health and disability (3 units) and PUBH 594 Nutrition and Disability (3 units).~~

Courses

G = for graduate credit. R after the credit indicates the course may be repeated for credit to the maximum indicated after the R. Credits beyond this maximum do not count toward a degree.

Public Health (PUBH)

U 102 History and Theory of Epidemiology 3 cr. Offered once per academic year. This undergraduate course covers the history and methods of epidemiology, the basic science of public health, how it has developed into our modern approach to preventing and controlling disease. Basic concepts and terminology will be introduced.

G 510 Introduction to Epidemiology 3 cr. Offered autumn. Principles and methods of epidemiologic investigation,

descriptive and analytic epidemiology techniques, disease frequency, risk determination, study designs, causality, and validity.

G 512 Neuroepidemiology 3 cr. Offered spring odd-numbered years. An overview of the fundamental considerations of the history, scope, and methods of neuroepidemiology as a subfield of epidemiology. Specific neurologic diseases and injuries will be studied as to distribution and risk factors, as well as the relationship to international public health.

G 515 Public Health Genetics 3 cr. Offered autumn. Basic principles of genetics and genomics, application to public health practices and research. Includes issues in public health genetics such as informed consent, screening for genetic susceptibility, and ethical, legal and social implications.

G 520 Fundamentals of Biostatistics 3 cr. Offered Autumn. This course is designed for graduate students and practitioners in public health, biomedical sciences, and related fields. The course introduces basic vocabulary, concepts, and methods of biostatistics. The goal is to provide an introduction to how biostatistics works. Topics will include descriptive statistics, probability, random variables, probability distributions, statistical inference, chi-square analysis, linear regression, and correlation.

G 530 Administration and Management in the U.S. Health Care System 3 cr. Offered autumn. The U.S. healthcare system including the rural system. Organization, management, evaluation, and finance.

G 535 Health Policy 3 cr. Offered autumn. The evolution and intersection of international, federal, state, and local public health policy.

G 540 Social and Behavioral Sciences in Public Health 3 cr. Offered spring. Behavioral and social factors relevant to the identification and solution of public health problems, principles of health behavior change, applications, and assessment of interventions.

G 550 Program Evaluation and Research Methods 3 cr. Offered summer. Prereq., PUBH 510 or equiv. and consent of instr. Covers purpose statements, standards, study designs, sampling, measurement, methods for data collection and analysis, interpretation, and report preparation. Models of evaluation described, and similarities and differences between research and evaluation methods explored.

G 560 Environmental and Rural Health 3 cr. Offered spring. Relationship of people to their physical environment, how this relationship impacts health, and efforts to minimize negative health effects.

G 570 Ethical Issues in Public Health 3 cr. Offered summer. Focus on the values and moral issues that underlie U.S. public health policies. Course examines ethical decision making in areas such as policy development, research, environmental health, occupational health, resource allocation, and genetics.

G 580 Rural Health Issues in a Global Context 3 cr. Offered summer. Prereq., 15 core credits and consent of instr. Analysis of public-health themes. Focus on rural concerns and transnational influences. Includes human rights, health equity, mobile and vulnerable populations, and transnational competence.

G 591 Practicum 3 cr. Offered autumn and spring. Prereq., admission into the M.P.H. program and consent of instructor. Semester long, supervised graduate practicum in a health science setting, followed by an oral defense. Offered credit/no credit only.

G 593 Professional Portfolio 3 cr. Offered autumn and spring. Prereq., PUBH 591 and PUBH 599, admission to the M.P.H. program and consent of instructor. Integrates the student's practice experience and knowledge gained through course work, practicum, and possibly professional papers and research with the goals and learning objectives of the M.P.H. program into a portfolio. Students will present and defend their portfolio to illustrate their growth as a professional public health practitioner at the end of their M.P.H. program. Offered credit/no credit only.

G 595 Special Topics Variable cr. (R-12) Offered intermittently. Experimental offerings of visiting professors,

experimental offerings of new courses, or one-time offerings of current topics. Previous topics have included Global Health and Epidemiology of Infectious Disease.

G 596 Independent Study Variable cr. (R-6) Offered autumn and spring. Prereq., admission to the M.P.H., program and consent of instructor. Supervised readings, research, or public health practice.

G 597 Research 3 cr. (R-6) Offered autumn and spring. Prereq., admission to the M.P.H. program and consent of instructor. With the guidance of their faculty advisor, students will develop a written proposal specific to the goals of their research project, and carry out the project.

G 599 Professional Paper 3 cr. Offered autumn and spring. Prereq., admission to the M.P.H. program and consent of instructor. Students will write and submit an original research paper to a peer-reviewed public health or medical journal. Students may also fulfill the professional paper requirement by presenting a conference paper or conference poster to a local, regional, or national meeting. Offered credit/no credit only.

Faculty

Public Health Core Faculty

Amanda L. Golbeck, Ph.D., University of California at Berkeley, 1983 (Biostatistics); M.A., University of California at Berkeley, 1979 (Statistics); M.A., University of California at Berkeley, 1977 (Anthropology)

Kari Harris, Ph.D., The University of Kansas, 1998 (Behavioral Psychology); M.P.H., The University of Kansas School of Medicine, 1997; M.S., Central Washington University, 1992 (Organizational Development)

Craig Molgaard, Ph.D., University of California at Berkeley, 1979 (Anthropology/Health and Medical Sciences); M.P.H. University of California at Berkeley, 1982 (Epidemiology); M.A., University of California at Berkeley, 1976 (Anthropology) (Chair)

MPH Program Faculty

Professors

Jean T. Carter, Ph.D., The University of Arizona, 1997; Pharm.D., The University of Arizona, 1993 (Pharmacy Practice)

Janet L. Finn, Ph.D., University of Michigan, 1995 (Social Work and Anthropology)

Peter Koehn, Ph.D., University of Colorado, 1973 (Political Science)

Willard O. Granath, Ph.D., Wake Forest University, 1982 (Biological Sciences)

Robin Saha, Ph.D., University of Michigan, 2002 (Environmental Studies)

Tom Seekins, Ph.D. University of Kansas, 1983 (Department of Psychology and the Rural Institute)

K. Ann Sondag, Ph.D., Southern Illinois, Carbondale, 1988 (Health and Human Performance)

Kay Unger, Ph.D., Johns Hopkins University, 1974 (Department of Economics)

Associate Professors

Duncan Campbell, Ph.D., Washington State University, 2003 (Psychology)

Bryan Cochran, Ph.D., University of Washington, 2003 (Psychology)

Kimber Haddix McKay, Ph.D., University of California at Davis, 1998 (Anthropology)

Curtis Noonan, Ph.D., Colorado State University, 2000 (Biomedical and Pharmaceutical Sciences and Pharmacy Practice)

Elizabeth Putnam, Ph.D., University of Texas-Houston, 1989 (Biomedical and Pharmaceutical Sciences)

Gilbert Quintero, Ph.D., University of Arizona, 1998 (Anthropology)

Assistant Professors

Annjeanette Belcourt-Dittloff, Ph.D., The University of Montana, 2006 (Pharmacy Practice and School of Public and Community Health Sciences)

Ranjan Shrestha, Ph.D., Ohio State University, 2007 (Department of Economics)

Tony Ward, Ph.D., The University of Montana, 2001 (Biomedical and Pharmaceutical Sciences and School of Public and Community Health Sciences)

Research Associate Professors

Donna Bainbridge, Ph.D., Boston University, 1990 (Rural Institute)

Ann Cook, Ph.D., The University of Montana, 2001 (Research, Psychology)

Kathleen Humphries, Ph.D., The University of California at Davis, 1995 (Rural Institute)

Lawrence L. White, M.H.A., St. Louis University, 1970 (Western Montana Area Health Education Center and School of Public and Community Health Sciences)

Research Assistant Professor

Meg Ann Traci, Ph.D., The University of Montana, 2000 (Rural Institute)

Project and Research Directors

Rosemary Hughes, Ph.D., University of Houston, 1989 (Rural Institute)

Craig H. Ravesloot, Ph.D., University of Montana, 1995 (Rural Institute)

School of Public and Community Health Sciences Faculty Affiliates

Elizabeth Ciemins, Ph.D., University of California at Berkeley, 2003; M.P.H., University of California at Los Angeles, 1994 (Research Director, Center for Clinical Translation Research, Billings Clinic)

Leslie Deck, M.P.A., The University of Montana, 2009; C.H.E.S., National Commission for Health Education Credentialing, 2004 (Program Coordinator, Tobacco Use Prevention, Flathead City-County Health Department, Health Promotion Specialist, Summit Medical Fitness Center)

John Felton, M.P.H., The University of Montana, 2010, M.B.A., University of Cincinnati, (Executive Vice President - Operations, RiverStone Health, Billings)

Lawrence Edward Frisch, M.D., Harvard Medical School, 1971; M.P.H. University of Washington, 1995 (Associate Professor, Northeastern Ohio University College of Medicine and Pharmacy; Executive Medical Director for Patient Safety and Quality, Vancouver Island Health Authority, British Columbia, Canada)

Suzanne Reid Hawley, Ph.D., Loma Linda University, 2002; M.P.H., Loma Linda University, 1999 (Assistant Professor) and MPH Program Director, University of Kansas School of Medicine-Wichita, Department of Preventive Medicine and Public Health

Steven D. Helgerson, M.D., University of Washington School of Medicine, 1973; M.P.H., University of Washington School of Public Health and Community Medicine (State Medical Officer, Montana Department of Health and Human Services)

Cindi Laukes, M.A., University of Iowa, 1990 (Clinical Research Director, Montana Neuroscience Institute, Clinical

Research Manager, Montana Cancer Institute)

Joanne Oreskovich, Ph.D., University of Minnesota, 2001 (Director/Epidemiologist, Behavioral Risk Factor Surveillance System, Montana D.P.H.H.S.)

Lolem Ngong, M.P.H., University of Kansas School of Medicine-Wichita, 2001 (WESTAT Contractor, Centers for Disease Control and Prevention, Division of Tuberculosis Elimination)

Greg Oliver, M.S., The University of Montana, 1989 (Director Health Promotion Division, Missoula City-County Health Department)

Angelia Paschal, Ph.D., Kent State University, 2003; M.Ed., University of Mississippi, 1992 (Assistant Professor, University of Kansas School of Medicine-Wichita, Department of Preventive Medicine and Public Health)

Lisa Pascopella, Ph.D., Albert Einstein College of Medicine, 1993; M.P.H., University of California at Berkeley, 1999 (Research Administrator and Faculty, FJ Curry National Tuberculosis Center, University of California-San Francisco)

Tom G. Schwann, Ph.D., University of California at Berkeley, 1983 (Chief and Senior Investigator, Laboratory of Zoonotic Pathogens, Rocky Mountain Laboratories, National Institute of Allergies and Infectious Diseases, National Institutes of Health.)

Julie Serstad, R.N., Montana State University, 1979; M.S.N., Gonzaga University, 1999 (Director of Health Services, Missoula City-County Health Department)

Skaggs School of Pharmacy

- . Admission
- . Pre-Pharmacy Program
- . Special Degree Requirements
- . Courses
- . Faculty

Pharmacy is the study of the biological, chemical, and physical characteristics of medicinal substances and the utilization of these substances in the prevention, treatment, and control of illness and disease. It also encompasses a study of the systems of delivering health care and the function of the professional pharmacist within these systems.

The Skaggs School of Pharmacy was established in 1907 at Montana State College and was transferred to the University in 1913. The pharmacy program consists of two departments, Pharmacy Practice and Biomedical and Pharmaceutical Sciences.

The Skaggs School of Pharmacy is a member of the American Association of Colleges of Pharmacy. The entry-level doctor of pharmacy program is fully accredited by the Accreditation Council for Pharmacy Education, 135 S. LaSalle Street, Suite 4100, Chicago IL 60603-4810, telephone (312) 664-3575, (800) 533-3606; FAX (312) 664-4652; <http://www.acpe-accredit.org/>

The curriculum offered by the Skaggs School of Pharmacy consists of a six year program leading to the entry-level Pharm.D. degree. The first two years, or pre-professional portion of the curriculum, are spent in studies of the basic biological and physical sciences, and in course work necessary to satisfy the University general education requirements. During the first three years of the professional program, students devote their time to the study of the biomedical and pharmaceutical sciences and pharmacy practice. Areas of study include biochemistry, microbiology, medicinal chemistry, pharmaceuticals, pharmacology, social administrative pharmacy, and therapeutics. The final professional year is entirely experiential.

A program of selected electives allows the student to obtain further educational experience in specialized areas of pharmaceutical knowledge. Students in the professional program may choose elective courses in specific areas of

interest which include community pharmacy practice, management, research and teaching, or hospital and institutional pharmacy practice. All students must confer with assigned advisors prior to each registration period and receive approval of proposed courses.

In addition to their formal educational program, students, to become registered pharmacists, must complete practical experience or internship under the direction of a registered pharmacist and pass an examination given by the State Board of Pharmacy.

Career opportunities exist in the fields of community pharmacy, institutional pharmacy, federal or state government service, public health agencies, and with the pharmaceutical industry in sales positions or in manufacturing. Those with advanced degrees are in demand for research positions and in pharmaceutical education.

High School Preparation: In addition to the general University admission requirements, algebra, trigonometry, biology, chemistry, physics and a course in computers are recommended.

Admission

The general requirements for admission to the University are listed separately in this catalog.

Pre-Pharmacy Program

The pre-pharmacy curriculum, which requires a minimum of two years of full-time study, may be taken at any accredited college or university.

Students at The University of Montana-Missoula may enter the pre-pharmacy program during any semester. It is recommended that students considering pharmacy as a major declare a pre-pharmacy major as early as possible in order to receive appropriate advising. Upon designating pre-pharmacy as a major, students will be assigned an advisor within the pharmacy program.

Professional Pharmacy Program

Students must apply for admission to the professional program. Class size in the professional pharmacy program is restricted and admission to the program is competitive. The admission process is designed to admit the best overall class into professional study. Completed applications are evaluated by the Skaggs School of Pharmacy Admissions Committee. Acceptances are made by the pharmacy faculty and the dean based on the recommendations of the committee.

Since very few elective credits are available in the professional pharmacy curriculum, students will be expected to have completed all General Education requirements except for the upper-division writing and ethics requirements prior to entering the professional curriculum. Students must complete all General Education requirements before entering pharmacy practice experience rotations during the final year of the program. Applicants will be screened based on academic record (both overall and in the required pre-pharmacy course work) and Pharmacy College Admission Test scores (refer to www.pcatweb.info for test dates). To be eligible for admission, students must have a minimum grade point average of 2.5 on a 4 point scale, both overall and in required pre-professional courses. Students must earn grades of at least a C (not C-) in all required pre-pharmacy courses. For the past several years there have been more than three applicants for each opening, and the grade point average of the entering class has been about 3.5. In addition, applicants must present proof of having completed at least 60 hours of volunteer or paid service in a pharmacy, other health care, or social field, and an evaluation form filled out by someone involved with the applicant in such an experience. A personal interview is also required.

As a state supported institution, the Skaggs School of Pharmacy gives all applicants from the Montana University System equal consideration for admission into the professional pharmacy program. There is no restriction on admission of out-of-state students; however, Montana residents are given priority among students with equal qualifications. Students will be notified of their admission status in writing. In the past, student with only international coursework have not been admitted to the professional pharmacy program.

The curriculum of the professional pharmacy program is sequential. Therefore, students may enter the program in the autumn semester only. Application forms for admission to the professional curriculum may be obtained from the website of the College of Health Professions and Biomedical Sciences (www.health.umt.edu). Applications must be post marked by February 15th preceding the autumn semester of the year for which admission is requested.

An application fee must be submitted with the application. Admission for one academic year cannot be deferred to another academic year. Official transcripts of all academic courses taken must be forwarded directly to the Skaggs School of Pharmacy.

The professional pharmacy curriculum must be taken in residence at the University. Students transferring from other accredited schools of pharmacy may be admitted with advanced standing, determined on the basis of credits accepted, provided they are in good academic standing. Transfer credit for required professional courses taken at other institutions is accepted only for those courses which are deemed equivalent and in which a letter grade of C (2.00) or better is obtained.

Academic Progression

The general University academic standing requirements are listed separately in this catalog. See index.

Students in the professional pharmacy curriculum must maintain cumulative, professional, and pharmacy grade point averages of 2.0 or higher. The professional grade point average consists of all required course work in the professional curriculum. The pharmacy grade point average consists of all courses with a pharmacy (BMED or PHAR) prefix.

Students enrolled in the professional pharmacy program must maintain satisfactory academic progress. Students must earn grades of at least C- in all required courses in the professional pharmacy curriculum. Students in the professional program who have a pharmacy or professional grade point average of less than 2.0 or who receive a grade of D or F in any required course in the professional curriculum will be placed on academic probation. A student must petition to continue in the professional pharmacy program if he or she is on probation. A student will be dismissed from the professional pharmacy program if he or she is on probation for a total of three terms, not necessarily consecutive, subject to review by the dean. A student will be removed from probation when a grade point average of 2.0 has been achieved and all grades in required professional pharmacy courses are C- or better.

Students who have failed ten or more credits of required professional course work or who fail to progress in the expected manner for two consecutive years may be dismissed from the professional pharmacy program, subject to review by the Academic Standards Committee and the dean.

Students dismissed from the program for substandard performance will not be readmitted, except in cases where substantiation is made to the faculty, by written petition, that the substandard performance was the result of circumstances that no longer exist, or that the student has demonstrated the capability and desire to perform satisfactory work since his or her dismissal from the program.

Students leaving the program on their own volition are guaranteed readmission if they are in good academic standing and exit by interview with the assistant dean for student affairs. Those students leaving the program on their own volition and not in good standing must reapply for admission.

The professional pharmacy curriculum consists of an integrated sequence of required courses which is designed to be completed in four consecutive years. With appropriate justification, part-time study in the professional pharmacy program may be allowed. Students desiring to be enrolled in part-time study must make their request by petition to the Academic Standards Committee. Because the curriculum is revised periodically, students who take longer than the normal number of years to complete the professional program will be required to complete curricular changes applicable to the class in which they graduate. Because the Pharmacy program is academically intense, employment beyond the minimal, part-time work is not recommended.

Special Degree Requirements

Refer to graduation requirements listed previously in the catalog. See index.

Degree candidates must:

1. Meet the general University requirements for graduation.
2. Earn a grade point average of 2.0 or higher in each of the following areas:
 1. all courses attempted at The University of Montana-Missoula (cumulative GPA).
 2. all courses which carry a pharmacy (BMED or PHAR) prefix (pharmacy GPA).
 3. all required courses in the professional pharmacy curriculum (professional GPA).
3. Required pharmacy course work must be completed with a grade of C- or better.
4. Complete at least six full academic years, including pre-pharmacy instruction, and a minimum of eight semesters of professional instruction as a full-time student registered for a minimum of twelve credits per semester.
5. Complete not less than 200 credits of course work.

Licensure in Montana

An applicant for licensure as a registered pharmacist in Montana must pass national examinations as required by the Montana State Board of Pharmacy. To qualify for the examinations, the applicant must be of good moral character and a graduate of an accredited school of pharmacy; however, an applicant will not receive a license until an internship is completed.

Internship Regulations

1. The internship requirement for licensure as a registered pharmacist in Montana is regulated by the Montana State Board of Pharmacy. Students must be registered with the Board of Pharmacy as a pharmacy intern in order to accrue internship hours.
2. Only those students who have completed the first year of the professional pharmacy curriculum may begin their internship.
3. The internship requirement consists of 1,500 hours of experience in an approved pharmacy setting. The student also may acquire hours concurrently with school attendance in courses, clinical pharmacy programs, or demonstration projects which have been approved by the Board of Pharmacy.
4. Many courses and programs currently offered by the School of Pharmacy are approved and applicable toward fulfilling the internship requirement.
5. Students will receive credit for internship time and/or courses taken if such experience is certified by the preceptor and/or instructor and approved by the Board of Pharmacy.

Pre-Pharmacy Curriculum

The courses shown here must be completed before entering the professional pharmacy program. The sequence of courses is illustrative and, if proper prerequisites are satisfied, the student may alter the order in which the courses are taken.

In addition, applicants to the professional pharmacy program must present proof of having completed at least 60 hours of volunteer or paid service in a pharmacy, other health care, or social field, and one letter of evaluation from someone involved with the applicant in such an experience. The Pharmacy College Admission Test (PCAT) must be taken during the second pre-pharmacy year.

Pre-Pharmacy First Year	A/S	Total Cr
CHMY 141N, 143N (CHEM 161N, 162N) College Chemistry I, II	5/5	10
M 162 (MATH 150) Applied Calculus (prereq. M 151 (MATH 121) or appropriate placement score)	4	4
BIOH 112 (BIOL 112) Intro to Human Form and Function I	3/3	6
BIOH 113 (BIOL 113) Intro to Human Form and Function II		
WRIT 101 (ENEX 101) English Composition	3	3
Pre-Pharmacy Second Year		
BIOB 260 (BIOL 221) Cell/Molecular Bio	4	4
CHMY 221, 222 (CHEM 221, 22) Organic Chemistry I, Organic Chemistry I Lab	3/2	5
CHMY 223 (CHEM 223) Organic Chemistry II	3	3

ECNS 201S (ECON 111S) Principles of Microeconomics	3	3
PHSX 205N/206N (PHYS 111N-113N) Fundamental of Physics I & Lab	4,1	5
STAT 216 (MATH 241) Statistics (other acceptable courses for the Statistics requirement include PSYX 222 or SOCI 202)	4	4

Either Year, any semester- Required **A/S Total Cr**

PSYX 100S (PSYC 100S) or SOCI 101S (SOC 110S) Intro to Psychology or Sociology	4 or 3	3 or 3
THTR 120A (DRAM 111A) Introduction to Acting I or COMM 111A Public Speaking	3	3

Either year, any semester - Recommended courses to fulfill UM General Education requirements **A/S Total Cr**

ANTY 103H (ANTH 101H) Anthropology & the Human Experience or NASX 105H (NAS 100H) Intro to Native American Studies	3	3
LIT 110L (ENLT 120) Intro to Lit or LIT 120L (ENLT 121) Poetry	3	3

* *Students must complete the University's General Education requirements. Due to the limitation of elective credits in the professional pharmacy curriculum, students are advised to complete the lower-division General Education requirement during the pre-pharmacy curriculum.

Professional Pharmacy Curriculum

Students must apply for admission to the professional program. For requirements see the section on Admission. Students enrolled in the professional pharmacy curriculum are assessed a supplemental fee. This fee does not apply to pre-pharmacy students. Refer to the fees section of this catalog for details. Students must demonstrate proficiency in pharmaceutical calculation by successfully completing a competency assessment prior to entering the second professional year. Students, except those exempt, must complete the University Upper-Division Writing Proficiency Assessment prior to entering the second professional year.

The Upper-division Writing Requirement must be met by successfully completing PHAR 550 or an upper-division writing course from the approved list in the Academic Policies and Procedures section of this catalog. See index.

First Professional Year	A	S
BMED 381 (BMED 395) Pharmaceutical Biochemistry	4	-
PHAR 328 (BMED 328) Antimicrobial Agents	-	3
PHAR 331 (BMED 331) Pharmaceutics	-	4
PHAR 341, 342 (BMED 341, 342) Physiological Systems I, II	4	4
PHAR 361-362 (BMED 361-362) Pharmaceutical Sciences Lab	1	1
BIOM 400 (MICB 302) Medical Microbiology	3	-
PHAR 300 (PHAR 309) Introduction to Pharmacy Practice	3	-
PHAR 310 Pharmacy Practice II	-	2
PHAR 363 Pharmaceutical Care Lab I	-	1
PHAR 371-372 Integrated Studies	1	1
Total	16	16
Second Professional Year Autumn/Spring Intersession:		
PHAR 480 Community Pharmacy Introductory Experience	-	3
A S		
PHAR 421 (BMED 421, 422) Medicinal Chemistry I, II	3	3
PHAR 432 (BMED 432) Clinical Pharmacokinetics	3	-
PHAR 443, 444 (BMED 443, 444) Pharmacology and Toxicology	4	4
PHAR 412 Pharmacy Practice III--Social and Behavioral Pharmacy	-	2
PHAR 451, 452 Therapeutics I, II	3	3
PHAR 460 Pharmaceutical Care Lab II	1	-
PHAR 463 Pharmaceutical Care Lab III	-	1
PHAR 471, 472 Integrated Studies	1	1
Electives	1	2
Total	16	16
Third Professional Year Autumn/Spring Intersession:		
PHAR 481 Hospital Pharmacy Introductory Experience	-	3
A S		
PHAR 505 Pharmacy Practice IV--Pharmaceutical Care	3	-
PHAR 506 Pharmacy Practice V--Advanced Pharmaceutical Care	-	3
PHAR 513 Pharmacoeconomics and Outcomes Research	-	3
PHAR 514E Pharmacy Ethics	-	3
PHAR 550 Drug Literature Evaluation	3	-
PHAR 553, 554 Therapeutics III and IV	4	4

PHAR 557 Public Health in Pharmacy	2	-
PHAR 560 Pharmaceutical Care Lab IV	1	-
PHAR 563 Pharmaceutical Care Lab V	-	1
PHAR 571, 572 Integrated Studies	1	1
PHAR 578 Portfolio Assessment & APFE Orientation	-	1
Total	14	16
Fourth Professional Year		
A S		
PHAR 579 Community Pharmacy Advanced Pharmacy Practice Experience	4	-
PHAR 580 Hospital Pharmacy advanced Pharmacy Practice Experience	-	4
PHAR 581 Inpatient Advanced Pharmacy Practice Experience	4	-
PHAR 582 Ambulatory Care Advanced Pharmacy Practice Experience	-	8
PHAR Elective Pharmacy Practice Experience	8	8
Total	16	20

Required credits: 200

Department of Pharmacy Practice

Michael P. Rivey, Chair

The Department of Pharmacy Practice provides academic course work for the Doctor of Pharmacy and Masters degrees, conducts research in the broad area of health care, and provides service to the profession of pharmacy and other health care disciplines.

Courses

U = for undergraduate credit only, UG = for undergraduate or graduate credit, G = for graduate credit. R after the credit indicates the course may be repeated for credit to the maximum indicated after the R. Credits beyond this maximum do not count toward a degree.

Pharmacy (PHAR)

U 195 Special Topics Variable cr. (R-16) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 300 (309) Introduction to Pharmacy Practice 3 cr. Offered autumn. Prereq., M 162 (MATH 150) and admission to the professional pharmacy program. An introduction to the prescription and pharmaceutical calculations and to the role of the pharmacist in systems involved in health care delivery.

U 310 Pharmacy Practice II: Law and Dispensing 2 cr. Offered spring. Prereq., PHAR 300 (309). Federal and state laws and regulations pertaining to pharmacy practice. Introductory dispensing laboratory.

U 320 American Indian Health Issues 2 cr. Offered spring. Same as HS 320. An overview of the health issues, health care delivery and payment that affect American Indians.

U 324 Medicinal Plants 2-3 cr. Offered autumn. Same as PHAR 324 (BMED 324) and HS 324. Plants and other natural substances which nourish, heal, injure, or alter the conscious mind.

U 363 Pharmaceutical Care Lab I 1 cr. Coreq. PHAR 310. Practice in technical and legal aspects of drug dispensing, prescription and OTC drug counseling, and sterile intravenous (IV) admixture.

U 390 (397) Research 1-3 cr. (R-6) Offered autumn and spring. Prereq., consent of instr. Individual participation in library or laboratory research.

U 391 (395) Special Topics Variable cr. (R-9) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 395 (380) Pharmacy Practicum 1-2 cr. (R-3) Offered autumn and spring. Prereq., PHAR 300 (309). Supervised

professional experience in the Student Health Service Pharmacy.

U 412 Pharmacy Practice III–Social and Behavioral Pharmacy 2 cr. Offered spring. Prereq., second professional year standing and a course in communication. The social, economic, legal, ethical, and psychological factors involved in professional and patient relationships of pharmacists.

U 415 Medication Therapy Management 1 cr. Offered Spring. Prereq., second or third professional year standing in pharmacy. A broad introduction to the basic principles, concepts, and application of medication therapy management (MTM) in various pharmacy practice settings.

UG 451 Therapeutics I 3 cr. Offered autumn. Prereq., second professional year standing; coreq., PHAR 471; prereq. or coreq., PHAR (BMED) 328, 421 and 443. Pharmacotherapeutics of common disease states emphasizing pathophysiology and the selection, monitoring, and individualization of drug therapy. Applies the basic pharmaceutical sciences to patient care.

UG 452 Therapeutics II 3 cr. Offered spring. Prereq., PHAR 451; coreq., PHAR 472; prereq. or coreq., PHAR (BMED) 422, 432 and 444. Pharmacotherapeutics of common disease states emphasizing pathophysiology and the selection, monitoring, and individualization of drug therapy. Applies the basic pharmaceutical sciences to patient care.

U 460 Pharmaceutical Care Lab II 1 cr. Offered autumn. Prereq., second professional year standing, PHAR 310. Introduction to parenteral practice application, applied patient interview assessment, and communication skills for practice.

U 463 Pharmaceutical Care Lab III 1 cr. Coreq. PHAR 412. Practice counseling and patient-care skills with emphasis on non-prescription drugs and devices. Includes individual in-service presentations.

U 471 Integrated Studies III 1 cr. Offered autumn. Prereq., second professional year standing in pharmacy. Small group conferences designed to develop professional skills while integrating material from first and second year professional pharmacy courses.

U 472 Integrated Studies IV 1 cr. Offered spring. Prereq., PHAR 471. Continuation of 471.

U 480 Community Pharmacy Introductory Pharmacy Practice Experience 3 cr. (R-6) Offered every term. Prereq., completion of first professional year. Supervised professional experience in community pharmacy.

U 481 Hospital Pharmacy Introductory Pharmacy Practice Experience 3 cr. (R-6) Offered every term. Prereq., completion of first professional year. Supervised professional experience in a hospital pharmacy.

U 490 (497) Research 1-3 cr. (R-6) Offered autumn and spring. Prereq., consent of instr. Individual participation in library or laboratory research.

UG 491 (495) Special Topics Variable cr. (R-9) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 505 Pharmacy Practice IV–Pharmaceutical Care 3 cr. Offered autumn. Prereq., third professional year standing in Pharm.D. program. Applications of advanced drug therapy monitoring and disease state management.

U 506 Pharmacy Practice V–Professional Practice Management 3 cr. Offered spring. Prereq., PHAR 505. Aspects of dispensing, management, communications, disease state monitoring, and legal issues related to the provision of pharmaceutical care.

UG 513 Pharmacoeconomics and Outcomes Research 3 cr. Offered spring. Prereq., third professional year standing or consent of instr. Introduction to assessing the economic, clinical and humanistic outcomes of pharmacotherapy.

U 514E Case Studies in Pharmacy Ethics 3 cr. Offered spring. Prereq., third professional year standing or consent

of instr. A practical discussion of pharmacy ethics, as it relates to pharmacy practice.

UG 516 Advanced Pharmacy Administration 2 cr. Offered intermittently. Prereq., consent of instr. Analysis of the pharmaceutical industry.

UG 550 Drug Literature Evaluation 3 cr. Offered autumn. Prereq., third professional year standing in pharmacy. Scientific and statistical evaluation of the drug and medical research literature to formulate solutions for patient-specific pharmacotherapy problems.

UG 553 Therapeutics III 4 cr. Offered autumn. Prereq., PHAR 452, 472: prereq. or coreq., PHAR 571. Pharmacotherapeutics of common disease states emphasizing pathophysiology and the selection, monitoring, and individualization of drug therapy. Applies the basic pharmaceutical sciences to patient care.

UG 554 Therapeutics IV 4 cr. Offered spring. Prereq., PHAR 553, 571; prereq. or coreq., PHAR 572. Intended for Pharm.D. students. Pharmacotherapeutics of common disease states emphasizing pathophysiology and the selection, monitoring, and individualization of drug therapy. Applies the basic pharmaceutical sciences to patient care.

UG 556 Psychopharmacotherapeutics 2 cr. Offered autumn. Prereq., PHAR 452 or consent of instr. A discussion of the more common childhood and adult psychiatric disorders with emphasis on a pharmacologic approach to their treatment.

UG 557 Public Health in Pharmacy 2 cr. Offered autumn. Prereq., PHAR 452, 472. Discussion of the roles and responsibilities of pharmacists in public health and the role of drugs in public health programs.

U 558 Physical Assessment 2 cr. Offered spring. Coreq., PHAR 554. Basic physical assessment skills for the pharmacist's proper interpretation of patient response to drug therapy.

U 560 Pharmaceutical Care Lab IV 1 cr. Coreq PHAR 505. Practice in professional communication and pharmaceutical care interventions and recommendations.

U 563 Pharmaceutical Care Lab V 1 cr. Coreq., PHAR 506. Practice in professional communication and pharmaceutical care interventions and recommendations.

UG 571 Integrated Studies V 1 cr. Offered autumn. Prereq., third professional year standing in Pharm.D. program. Small group conferences designed to develop the professional skills needed to practice pharmaceutical care while integrating material from the professional pharmacy curriculum.

U 572 Integrated Studies VI 1 cr. Offered spring. Prereq., third professional year standing in Pharm.D. program. Small group conferences designed to develop professional skills while integrating material from other pharmacy courses.

U 573 Institutional Pharmacy 3 cr. Offered autumn. Prereq., PHAR 300 (309) and PHAR (BMED) 331. The pharmacist's role and activities in drug distribution and control in hospitals and related institutions with an emphasis on the preparation and administration of sterile products.

U 578 Portfolio Assessment and APPE Orientation 1 cr. Offered spring. Prereq., final semester in didactic PHARM D curriculum. Preparation and assessment of the student portfolio and orientation for the final experiential year of the professional pharmacy program.

U 579 Community Pharmacy Advanced Pharmacy Practice Experience Variable cr. (R-12) Offered every term. Prereq., completion of didactic courses in the Pharm. D. program. Supervised professional experience in the patient care functions of the pharmacist in the community pharmacy setting.

U 580 Hospital Pharmacy Advanced Pharmacy Practice Experience Variable cr. (R-12) Offered every term. Prereq. Completion of didactic courses in the Pharm.D. program. Supervised professional experience in the patient care functions of the pharmacist in the hospital pharmacy setting.

U 581 Inpatient Advanced Pharmacy Practice Experience Variable cr. (R-12) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in the clinical functions of the pharmacist in the inpatient hospital setting.

U 582 Ambulatory Care Advanced Pharmacy Practice Experience Variable cr. (R-16) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in the clinical functions of the pharmacist in the ambulatory care setting.

U 583 Drug Information Advanced Pharmacy Practice Experience 4 cr. (R-8) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in the provision of drug information by the pharmacist.

U 584 Specialized Services Advanced Pharmacy Practice Experience 4 cr. (R-8) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in specialized practice settings, such as home infusion, compounding, and nuclear pharmacies..

U 585 Geriatric Advanced Pharmacy Practice Experience 4 cr. (R-8) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience with geriatric patients in the long term care and/or other pharmacy setting.

U 586 Clinical Specialty Advanced Pharmacy Practice Experience 4 cr. (R-16) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in the clinical functions of the pharmacist in specialty settings or with specialized groups of patients.

U 587 Administrative Advanced Pharmacy Practice Experience 4 cr. (R-8) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in the administrative aspects of providing pharmaceutical care.

U 588 Research Advanced Pharmacy Practice Experience 4 cr. (R-8) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in a research setting.

U 589 Education Advanced Pharmacy Practice Experience 4 cr. Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in teaching in a pharmacy curriculum.

UG 593 Current Research Literature 1 cr. (R-6) Offered autumn and spring. Readings and discussion of current research literature.

UG 594 Seminar 1 cr. (R-6) Offered autumn and spring. Prereq., senior or graduate standing.

UG 595 Special Topics Variable cr. (R-9) Offered intermittently. Prereq., senior or graduate standing. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

UG 596 Independent Study Variable cr. (R-9) Offered every term.

UG 597 Research Variable cr. (R-6 for undergraduates; R-10 for graduates) Offered every term. Prereq., senior or graduate standing. Individual participation in library or laboratory research.

G 599 Thesis Variable cr. (R-10) Offered every term.

G 603 Professional Practice IV–Pharmaceutical Care 4 cr. Offered autumn. Prereq., third professional year standing in Pharm.D. program and acceptance into M.B.A. program. Aspects of dispensing, management, communications, disease state monitoring, and legal issues related to the provision of pharmaceutical care.

G 604 Professional Practice V–Advanced Professional Practice 4 cr. Offered spring. Prereq., PHAR 603. Applications of advanced drug therapy monitoring and disease state.

Faculty

Professors

Douglas R. Allington, Pharm.D., University of South Carolina, 1988

Donna G. Beall, Pharm.D., University of Florida, 1984

Jean T. Carter, Ph.D., University of Arizona, 1997

Gayle A. Hudgins, Pharm.D., Duquesne University, 1976

William J. Docktor, Pharm.D., University of Michigan, 1977

David S. Forbes, Ph.D., University of Wisconsin, 1973 (Dean)

Sarah Johnston Miller, Pharm.D., Mercer University, 1985

Lori J. Morin, Pharm D., M.B.A., The University of Montana, 1981 (Assistant Dean for Student Affairs)

Michael P. Rivey, M.S., University of Iowa, 1982 (Chair)

Associate Professors

Sherrill Brown, Pharm.D., University of Missouri, Kansas City, 2003

Vincent J. Colucci, Pharm.D., Idaho State University, 1995

Kendra Procacci, Pharm.D., University of Wyoming, 2004

Assistant Professors

Annjeanette E. Belcourt-Dittloff, Ph.D., University of Montana, 2006

Katy Hale, Pharm.D., University of Washington, 2004

Kerry J. Haney, Pharm.D., The University of Montana, 2011

Instructor

Lisa Wrobel, Pharm.D., The University of Montana, 2003

Adjunct Assistant Professors

Lisa C. Barnes, M.B.A., The University of Montana, 1994

Department of Biomedical and Pharmaceutical Sciences**Richard J. Bridges, Chair**

The Department of Biomedical and Pharmaceutical Sciences offers a curriculum in support of the Doctor of Pharmacy (Pharm.D.) degree and graduate programs in the biomedical and pharmaceutical sciences. Degree programs include the M.S. in Neuroscience, Pharmaceutical Sciences, Toxicology and Medical Chemistry; and the Ph.D. in Neuroscience, Biomedical Sciences, Toxicology, and Medical Chemistry. These programs provide education and training in pharmacology, toxicology, neurobiology, neurochemistry, medicinal chemistry, and molecular genetics. Program graduates are well prepared for careers in academia, government and industry.

Courses

U = for undergraduate credit only, UG = for undergraduate or graduate credit, G = for graduate credit. R after the credit indicates the course may be repeated for credit to the maximum indicated after the R. Credits beyond this maximum do not count toward a degree.

Biomedical and Pharmaceutical Sciences (PHAR)

U 110N Use and Abuse of Drugs 3 cr. Offered autumn and spring. Drug dependence and abuse.

U 145N Introduction to Cancer Biology 3 cr. Introduction to basic concepts in cancer biology, treatment, and prevention. Includes discussions of the history of cancer, nomenclature, prevention, cellular and molecular mechanisms, pathology, treatment, and familial cancers.

U 191 (195) Special Topics Variable cr. (R-16) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 324 Medicinal Plants 2-3 cr. Offered autumn. Plants and other natural substances which nourish, heal, injure, or alter the conscious mind.

U 328 Antimicrobial Agents 3 cr. Offered spring. Prereq., BCH 380 (BIOC 380), BIOM 400 (MICB 302). Chemical characteristics, biochemical mechanisms, and pharmacological properties of drugs used in treating infections caused by microorganisms.

U 331 Pharmaceutics 4 cr. Offered spring. Prereq., CHMY 222 (CHEM 222), first professional year standing. Physical pharmacy and dosage forms.

U 341 Physiological Systems I 4 cr. Offered autumn. Prereq., CHMY 222 (CHEM 222), PHSX 205N (PHYS 121N), BIOB 260/261 (BIOL 221). Principles of anatomy, normal and abnormal physiology.

U 342 Physiological Systems II 4 cr. Offered spring. Prereq., PHAR 341 (BMED 341). Continuation of 341.

U 347 Introduction to Neuroscience 3 cr. Offered autumn. Prereq., introductory chemistry and biology. Same as BIOH 360 (BIOL 347). The molecular and cellular physiology of the human nervous system. Topics range from the basis of electrical and chemical signaling in neurons to the organization of the nervous system and its functions in generating behavior.

U 361 Pharmaceutical Sciences Laboratory 1 cr. Offered autumn. Coreq., PHAR 300 (309), PHAR 341 (BMED 341). Laboratory experience in the pharmaceutical sciences.

U 362 Pharmaceutical Sciences Laboratory 1 cr. Offered spring. Prereq., PHAR 361 (BMED 361); coreq., PHAR 331 and 342 (BMED 331 and 342). Continuation of 361.

U 371 Integrated Studies I 1 cr. Prereq., first professional year standing in pharmacy. Small group conferences designed to develop professional skills while integrating material from other pharmacy courses.

U 372 Integrated Studies II 1 cr. Prereq., PHAR 371. Continuation of 371.

U 381 Pharmaceutical Biochemistry 4 cr. Offered every Autumn. Prereq., admission to Pharmacy School. Fundamental biochemistry from a pharmaceutical sciences perspective; management of genetic information, molecular structure and function, and metabolic reactions, especially as relating to drug actions and targets.

U 390 (397) Research 1-3 cr. (R-6) Offered autumn and spring. Prereq., consent of instr. Individual participation in library or laboratory research.

U 391 (395) Special Topics Variable cr. (R-9) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 401 Use of Animals in Research 2 cr. Offered intermittently. Prereq., consent of faculty supervisor. An introductory course to the care and use of laboratory animals in research. Includes lecture and some hands-on instruction with inanimate models and live animals.

UG 421 Medicinal Chemistry I 3 cr. Offered autumn. The chemistry of organic compounds used medicinally and their biochemical mechanisms of action.

UG 422 Medicinal Chemistry II 3 cr. Offered spring. Prereq., BMED 421. Continuation of 421.

U 430 Pharmacogenetics 2 cr. Offered each semester online. Prereq., BMED 421, 432. The genetic basis of differential drug activity.

U 432 Clinical Pharmacokinetics 3 cr. Offered spring. Prereq., BMED 331 and pharmaceutical calculation proficiency requirement, or consent of instr. Drug absorption, distribution and elimination.

UG 443 Pharmacology and Toxicology 4 cr. Offered autumn. Prereq., second professional year standing. Basic principles of pharmacology, toxicology and therapeutics.

UG 444 Pharmacology and Toxicology 4 cr. Offered spring. Prereq., BMED 443. Continuation of 443.

U 445 Immunopharm/Immunotox 3 cr. Offered in alternating years. Prereq., consent of instr. This course is designed to introduce advanced undergraduate students and professional Pharmacy students to various aspects involved in the development and mechanisms of action of immunomodulatory drugs and chemicals.

UG 495 Special Topics Variable cr. (R-9) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 497 Research 1-3 cr. (R-6) Offered autumn and spring. Prereq., consent of instr. Individual participation in library or laboratory research.

Biomedical and Pharmaceutical Sciences (BMED)

G 545 Research Laboratory Rotations 2-3 cr. (R-6) Offered autumn and spring. Prereq., graduate standing. Experience in research methods in departmental research laboratories.

G 581 Research Seminar in Biomedical Science 1 cr. (R-9) Offered autumn and spring. Oral and written presentations of experimental research results and selected literature topics in biomedical science.

G 582 Research Seminar in Neuroscience 1 cr. (R-9) Offered autumn and spring. Oral and written presentations of experimental research results and selected literature topics in neuroscience.

G 583 Research Seminar in Toxicology 1 cr. (R-9) Offered autumn and spring. Oral and written presentations of experimental research results and selected literature topics in toxicology.

G 593 Current Research Literature 1 cr. (R-6) Offered autumn and spring. Readings and discussion of current research literature.

G 594 Seminar 1 cr. (R-6) Offered autumn and spring. Prereq., senior or graduate standing.

UG 595 Special Topics Variable cr. (R-9) Offered intermittently. Prereq., senior or graduate standing. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

G 596 Independent Study Variable cr. (R-9) Offered every term.

G 597 Research Variable cr. (R-10) Offered every term.

G 599 Thesis Variable cr. (R-10) Offered every term.

G 600 Cell Organization & Mechanisms 3 cr. Offered every spring. Prereq., BCH 480 or consent of instr. Same as BMED 600. Primary literature exploration of the regulation of structure, function, and dynamics of eukaryotic cells. Topics include membranes, cytoskeleton, transcription, translation, signal transduction, cell motility, cell proliferation, and programmed cell death.

G 605 Biomedical Research Ethics 1 cr. Offered spring. Overview of biomedical research ethics and regulations. Topics include ethics and morality in science, scientific integrity, conflicts of interest, human and animal

experimentation, intellectual property, plagiarism.

G 607 Topics in Epidemiology 1-3 cr. (R-9) Offered autumn or spring. Prereq., BMED 609 or equiv. Current topics in epidemiology.

G 609 Biomedical Statistics 3 cr. Offered autumn. Experimental design and statistical analysis relevant to the biomedical sciences.

G 610 Neuropharmacology 3 cr. Offered alternate years. Prereq., BMED 613 or 661 or consent of instr. Focus on current areas of research and research technologies in neuropharmacology. Development of presentations and research grant proposals.

G 613 Pharmacology I 4 cr. Offered autumn. Prereq., BCH 380 (BIOC 380) or equiv. Fundamentals of pharmacology and drug action.

G 614 Pharmacology II 4 cr. Offered spring. Prereq., BMED 613. Fundamentals of pharmacology and drug action. Continuation of BMED 613.

G 615 Molecular Pharmacology 3 cr. Offered alternate years. Prereq., BMED 600, 613 or consent of instr. Focus on the molecular world of receptors and their interactions with related cellular components and ultimately with binding ligands, both physiological and pharmaceutical. Major emphasis in pharmacodynamics with some time devoted to related pharmacokinetic parameters.

G 620 Cardiovascular Pharmacology and Toxicology 3 cr. Offered alternate years. Prereq., BMED 613 or 641, or consent of instr. Recent advances in pharmacology and toxicology of the cardiovascular system. In-depth study of regulatory mechanisms and the effect of immune response and xenobiotics on cardiovascular function.

G 621 Drug Design, Development and Discovery with lab 4 cr. Offered alternate years. Prereq., Organic Chemistry and Biochemistry or consent of instr. Introduction to the main concepts in medicinal chemistry. Laboratory experience in instrumental analysis, interpreting NMR, MS cleavage, and structure elucidation.

G 622 Drug Pharmacodynamic-Drug Receptor Interactions with lab 4 cr. Offered alternate years. Organic Chemistry and Biochemistry or consent of instr. Introduction and topical coverage of how drugs form complexes with biological targets to cause an array of responses.

G 623 Drug Diversity and Target-Oriented Synthesis 3 cr. Offered alternate years. Organic Chemistry and Biochemistry or consent of instr. Topics in chemogenomics and diversity oriented synthesis will be covered.

G 625 Drug Synthesis 3 cr. Offered intermittently. An introduction to the past and current synthetic approaches and total syntheses of biologically active drugs.

G 626 Research Methods in Biochemical Pharmacology 1- 3 cr. (R-6) Offered every term. Prereq., consent of instr. Laboratory course intended to familiarize students with the instruments, and expertise of current research techniques in the biomedical sciences.

G 627 Professional Development 1 cr. Offered autumn and spring. Prereq., Organic Chemistry and Biochemistry or consent of instr. Developmental training in presentations, writing, reviewing, literature research, teaching, research methods, grant writing, ethics, and business aspects in medicinal chemistry.

G 630 Pharmacogenetics 3 cr. Offered intermittently online. Prereq., BCH 380 or 480 (BIOC 380 or 481). The genetic basis of differential drug activity.

G 632 Advanced Pharmacokinetics 4 cr. Offered autumn. Recent developments and emerging concepts in theoretical and experimental pharmacokinetics, pharmacogenomics, and drug disposition. Critical analysis of the current literature.