Interdisciplinary Opportunities

Washington University School of Medicine excels in applying a multidisciplinary approach to all its endeavors, allowing faculty to easily cross administrative boundaries to address the health industry's biggest challenges. To achieve this goal, the medical school provides a limited number of interdisciplinary courses. Interdisciplinary experiences can additionally be found in many of our joint programs of study.

For more information about joint degrees offered through the medical school, please visit the Joint section of the Degrees & Programs Offered (http://bulletin.wustl.edu/medicine/degrees/#joint) page.

Courses

Visit online course listings to view offerings for M80 InterDis (https://courses.wustl.edu/CourseInfo.aspx?sch=M&dept=M80).

M80 InterDis 501 Clinical Epidemiology and Biostatistics
This course will be presented in the first year by clinicians and will emphasize important principles of applying biostatistics and epidemiology rules to the study of human diseases. Practical applications of statistical tools in biomedical and clinical settings will be discussed along with other subjects such as clinical study design. This course will consist of formal lectures followed by a discussion session in which students will meet in small groups to discuss pertinent papers with particular emphasis on methodologies.
Credit 28 units.

M80 InterDis 601 Clinical Epidemiology and Biostatistics
This course will be presented in the first year by clinicians and will emphasize important principles of applying biostatistics and epidemiology rules to the study of human diseases. Practical applications of statistical tools in biomedical and clinical settings will be discussed along with other subjects such as clinical study design. This course will consist of formal lectures followed by a discussion session in which students will meet in small groups to discuss pertinent papers with particular emphasis on methodologies.
Credit 17 units.

M80 InterDis 807 Physical Medicine and Rehabilitation
The elective is designed to provide the student with a broad introduction to the field of physical medicine and rehabilitation. Major objective of this clinical elective is to achieve greater knowledge of the neurological and musculoskeletal diseases and their treatment, and gain understanding of basic principles of rehabilitation. The student will learn the clinical and rehabilitative care of patients with strokes, traumatic brain injury, spinal cord trauma and diseases, and limb amputations. Student will gain clinical skills in evaluating management of functional impairments. Students will be expected to participate in daily rounds on inpatient rehabilitation units with the clinical care team, follow 3-5 patients, attend multidisciplinary team conferences and family meetings, attend outpatient rehabilitation clinics in spinal cord, stroke, traumatic brain injury, and amputee. Teaching and supervision is provided by the psychiatry and neurology faculty of the Division of Rehabilitation. Rehabilitation and neurology residents are involved in student teaching as well. Students are required to participate in didactic teaching conferences within the PM&R residency. This rotation is particularly useful for students considering careers in rehabilitation, neurology, geriatrics, primary care, neurosurgery, or any other field that will require experience in the evaluation and management of patients with physical impairment and disabilities.

M80 InterDis 809 Ambulatory Care - Jacqueline Maritz Lung Center
The Jacqueline Maritz Lung Center houses the ambulatory care activities of the Divisions of Pulmonary Medicine, Thoracic Surgery, and Allergy/Immunology, as well as the pulmonary function laboratory. The student will rotate through: 1. both general pulmonary and subspecialty clinics in Pulmonary Medicine (cystic fibrosis, transplantation, emphysema, etc.), 2. the Thoracic Surgery clinic, and 3. the Allergy/Immunology clinic. Students will also interpret pulmonary function tests. Chest imaging is also emphasized in the evaluation process. The rotation can be streamlined to meet areas of emphasis desired by individual students.

M80 InterDis 827 Introduction to Global Health
This is a cross-disciplinary "crash course" in global health for students considering a career in global health and should be particularly useful for those students planning to complete international electives before graduation or during residency. The course consists of a mix of lectures, workshops, discussions, debates, laboratory sessions, clinics, and simulation labs for two weeks. Topics will include significant coverage of high-burden infectious and tropical diseases (primarily case-based) in addition to discussion of emerging and neglected global health topics including mental health, non-communicable diseases, radiology, and maternal health. Active participation in all activities and discussions is expected in order to obtain credit for this course. The course is team taught by faculty from around the medical school with extensive experience in global health and will include opportunities to network with faculty and residents actively engaged in clinical, research, policy, and implementation work around the world. This course has been run for two years previously for residents only and now is being opened up to senior medical students as well. No specific clinical requirements or call is required. Attendance and active participation for each session throughout the two weeks is required and students should not schedule residency interviews or other time off during this block.

M80 InterDis 829 Biomedical Innovation and Entrepreneurship
The four-week course will be offered once during the year: Weeks 25 through 28. Course Description: This four-week course will serve as both a primer course for students interested in medical technology and biotechnology development, as well as a hands-on opportunity for them to work directly with teams engaged in clinical problem solving and product development. Students will learn the basics of developing a business plan, market analysis, clinical needs assessment, and project design. Students will split their time between working with an IDEA Labs team, performing independent research, and completing educational modules. During the portion of the year this course
is offered, IDEA Labs teams are beginning to develop solutions to clinical problems. During this process the teams need to reach out to the clinical community for input on clinical needs and marketability. Fourth-year medical students will work with one IDEA Labs team to help complete the clinical needs assessment and market analysis portions of their business model. The hands-on learning modules from an assortment provided by IDEA Labs from which the student may choose. The lectures will consist of online/in-person lectures outlining business development, clinical needs assessment, market analysis, and product development. The hands-on experiences will consist of 3D printing/prototyping and an open-source single-board microprocessor workshop.

Objectives: By the end of this course students should be able to:
1. Perform a clinical needs assessment of a proposed solution to a clinical problem, including: clearly defining the problem at hand, researching current solutions, designing and implementing a needs-based survey, and obtaining expert opinion and consultation.
2. Perform a preliminary market analysis of a proposed solution to a clinical problem, including estimates of: market size, market trends, market growth rate, market profitability, industry cost structure, distribution channels, key success factors, key success details, and a SWOT analysis (strengths, weaknesses, opportunities and threats) of the proposed solution and IDEA Labs team/business as a whole.
4. Print a small 3D object using modern, commercially available 3D printing techniques.
5. Print a small 3D object using modern, commercially available 3D printing techniques. Grading and Evaluation: This course will be graded on a pass/fail basis. There will be no exam, and the following criteria will be used to determine the final grade: Submissions of: clinical needs assessment, market analysis, demonstration of completed passport of experiences, self-assessment. Students must complete a survey at the beginning and the end of the course reflecting the knowledge that they have gained during the course.

M80 InterDis 849 Fourth-Year Capstone Course
The Fourth-Year Capstone Course is highly structured and is schedule-sensitive. In order to provide students with the absolute best experience possible, students are required to attend all sessions. In general, the morning sessions will start at 8:00 a.m. and run until approximately 12 noon. Afternoon sessions will generally run from 1:00 p.m. until about 5:00 p.m. The afternoons are hands-on activities which are faculty/staff intensive. By the end of this four-week course, students should be able to demonstrate improved cognitive and clinical skills needed to enter the internship year of graduate medical training. The target group for this course is primarily students entering clinical residency training positions. As outlined in the course objectives, topics to be covered include acute clinical problems commonly faced on the inpatient service or emergency room, review of key diagnostic testing, basic procedural skills, and patient and family communications regarding informed consent and end-of-life issues. Course work will be divided between self-study, didactic and small group discussions, and hands-on skills practice and simulation. Parts of the course will be tailored to individuals entering internal medicine, pediatrics and surgical disciplines. Students will be assessed by performance on simulation exercises and a written exam. By the end of this course, the student will be able to: 1. respond to common acute patient problems as tested with simulation by rapidly assessing the patient, requesting relevant information from the patient, medical record, and nursing staff, generate a differential diagnosis and order appropriate diagnostic testing and initial treatment for the problem, 2. demonstrate competence in a set of designated technical skills commonly needed in residency including basic suturing, chest tubes, central line, thoracentesis, and IV placement, 3. demonstrate the ability to interpret diagnostic tests, such as chest x-ray and EKG, commonly used for initial evaluation of acute medical problems, and 4. demonstrate and discuss the key elements of obtaining informed consent, dealing with difficult patient and family situations, end-of-life issues, and pain management.