Doctor of Medicine (MD)

By conferring the MD degree, the university certifies that the student is competent to undertake a career as a doctor of medicine. It certifies further that, in addition to medical knowledge and skills, the graduate possesses qualities of personality — compassion, emotional stability and a responsible attitude — essential to an effective professional life.

Doctor of Medicine Degree

A course of medical education for the MD degree ordinarily consists of a minimum of four years of study. Students recommended for the Doctor of Medicine degree must be of good moral character, they must have completed an entire academic course of instruction as matriculated medical students, they must have passed all required subjects or the equivalent and have received satisfactory grades in the work of the full academic course, and they must have discharged all current indebtedness to the university. The school requires that students take the USMLE Step 1 and Step 2 (CS and CK) examinations. All students must take and pass the school's Comprehensive Clinical Examination (CCX) prior to graduation.

At the end of the final academic year, students who have fulfilled these requirements will be eligible for the MD degree.

Curriculum

The curriculum is an evolving product of prolonged and continuing study, by both faculty and students, of the present and probable future direction of medical science and medical practice, and of the ways in which medical education can be kept abreast of this direction. Our students enter medical school with diverse backgrounds and interests and upon graduation undertake a wide variety of careers. The curriculum provides the basic knowledge and skills essential for their further professional development. Modern medical education can no longer hope to be comprehensive; it must be selective. Yet students must develop facility in the understanding and use of several related technical languages: those of anatomy, chemistry, physiology and clinical medicine. They must share responsibility for the care of the patient. They also must learn how these areas of endeavor are interrelated, how the organization and needs of society influence the methods of providing medical care, and how new knowledge is acquired and old knowledge re-evaluated.

The curriculum includes a core experience based upon a sequence of courses that introduces students to the many domains and disciplines of medicine. The principles, methods of investigation, problems and opportunities in each of the major disciplines of medical science and medical practice are presented in such a way as to help students select the career best suited to their abilities and goals.

In the final year of the medical school curriculum, the required elective program helps students to decide where major interests lie. It also enables them to benefit from the wide range of specialized knowledge and skills found in the faculty and lays the foundation for lifelong learning and application of principles. The elective program permits students to select, according to their desires, the areas they wish to explore or to study in depth.

Please visit the Departments & Programs (http://bulletin.wustl.edu/medicine/departments) section for detailed information about courses offered. Individual courses can be found on department and program pages, and first-year elective courses (M04) can be found on the Office of Medical Student Education (http://bulletin.wustl.edu/medicine/departments/medical-student-education/#courses) page.

Washington University School of Medicine Medical Student Competency-Based Learning Objectives

Washington University School of Medicine (http://medicine.wustl.edu) provides students with a supportive, stimulating and challenging environment in which to acquire a thorough foundation in scientific medicine and develop skills and professional attitudes necessary for the practice of medicine at the highest possible level of excellence. In addition, the medical school fosters a commitment to collegiality, respect of individuality, community involvement and leadership through many extracurricular organizations and activities supported by the school. The educational program is designed to ensure that each student will demonstrate the following:

I. Medical knowledge

Medical students must demonstrate knowledge of core concepts and principles of human biology and genetics, the scientific foundations of medicine, and the causations, epidemiology, diagnosis and treatment of diseases in individuals and diverse populations.

**MK-1** Demonstrate knowledge of normal human structure and function at the molecular, genetic, cellular, tissue, organ-system and whole-body level in growth, development, and health maintenance.

**MK-2** Describe the basic mechanisms involved in the causation and treatment of human disease and their influence on clinical presentation and therapy.

**MK-3** Demonstrate knowledge of the epidemiology of common diseases.

**MK-4** Demonstrate knowledge of the impact of ethnicity and culture, socioeconomic factors, and other social factors on health, disease, and individual patient approaches to health care.
MK-5 Describe the basic scientific and ethical principles of clinical and translational research.

II. Patient care
Medical students must demonstrate the ability to provide appropriate patient care in a multidisciplinary setting for the promotion of health and treatment of health problems across the human life span.

PC-1 Obtain appropriate medical histories that include psychosocial and behavioral factors that influence health.

PC-2 Perform accurate physical examinations.

PC-3 Perform basic procedures necessary for the practice of medicine.

PC-4 Apply the scientific method to the practice of medicine including the processes of problem identification, data collection, hypothesis formulation, and the application of deductive reasoning to problem solving, clinical reasoning, and decision-making.

PC-5 Integrate collected clinical information, including history, physical examination, and relevant laboratory, radiologic, and other studies, to develop and carry out with supervision, appropriate, individualized diagnostic and treatment plans for patients across the broad spectrum of acute and chronic conditions.

PC-6 Perform basic risk assessments and formulate plans to promote patient wellness across the human lifespan.

PC-7 Counsel and educate patients and their families based upon consideration of patient lifestyle, culture, concomitant medical conditions, psychosocial, and socioeconomic factors.

III. Interpersonal and communication skills
Medical students must demonstrate their ability to communicate effectively with members of the medical community and with patients and their families from all socioeconomic and cultural backgrounds. (ED-10)

ICS-1 Demonstrate respectful and effective verbal and nonverbal interpersonal communication skills with patients.

ICS-2 Discuss diagnostic and treatment options in a manner that will facilitate the participation of patients and their families in shared decision-making.

ICS-3 Communicate effectively with members, including both physician and non-physician professionals, of the health care team.

ICS-4 Maintain accurate and thorough medical records and written documents.

IV. Professionalism
Medical students must demonstrate a commitment to professional responsibilities, adherence to ethical behaviors, and sensitivity to patients of diverse backgrounds.

PROF-1 Maintain a professionally appropriate demeanor, exhibit high standards of professional integrity, and demonstrate an awareness of potential conflicts of interest.

PROF-2 Apply legal and ethical principles governing the physician-patient relationship to interactions with patients and their families.

PROF-3 Act in the patient’s best interest and serve as a patient advocate.

PROF-4 Work collaboratively and effectively in interprofessional teams.

PROF-5 Treat all patients and patients’ family members respectfully and compassionately with respect for privacy.

V. Systems-based practice
Medical students must demonstrate an awareness of the larger context and system of health care and its impact on patients and the practice of medicine.

SBP-1 Demonstrate a knowledge of the U.S. health care delivery system, including the impact of financing, health policy, and the regulatory structure on health care.

SBP-2 Describe how health care disparities impact access and delivery of medical care for individuals and describe strategies for addressing these disparities.

SBP-3 Recognize the need for cost awareness and the role of risk benefit analysis in patient and population-based care.

SBP-4 Define patient safety and quality improvement, and discuss strategies to maximize the safety and quality of patient care.

VI. Practice-based learning and improvement
Medical students must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve their patient care skills based on external feedback and self-evaluation.

PBLI-1 Demonstrate the skills needed for lifelong learning including the ability to identify and address personal strengths and weaknesses to incorporate formative feedback, and to self-assess knowledge and performance to develop a self-improvement plan.

PBLI-2 Apply an evidence-based approach to medical practice through selecting, appraising, and utilizing evidence from scientific studies related to clinical questions and patients’ health problems.
PBLI-3 Participate in the education of peers and other members of the health care team.

PBLI-4 Identify and address biases (both personal and in others) that may impact health care delivery.

**Preclinical**

**Preclinical Curriculum**

The preclinical curriculum provides a science and investigative foundation for future clinical practice. First-year (https://md.wustl.edu/academics/curriculum/first-year) and second-year (https://md.wustl.edu/academics/curriculum/second-year) course work combines basic science taught in a variety of didactic means including lectures, small groups, simulations and case-based learning with a Practice of Medicine course that uses regular patient interactions and integrative cases to teach students to skillfully interview and examine patients, as well as integrating current health disparities and issues in the present global spectrum.

Students will also have the opportunity during their first year to complete four 10-hour selective courses (http://bulletin.wustl.edu/medicine/departments/medical-student-education/#courses) in the humanities, basic sciences and clinical areas, providing enrichment and in-depth focus on areas beyond the core curriculum.

The preclinical curriculum is pass/fail.

**Clinical**

**Third Year**

The overall goal of the third year is implementation of fundamental interactive clinical skills necessary for the practice of medicine at the highest possible level of excellence. Students achieve this goal by participating in intensive, closely supervised training experiences in the core clinical clerkships involving inpatient and ambulatory settings and interactions with patients who present a spectrum of emergent, urgent, routine and chronic clinical problems. Through these experiences, students exhibit growth and maturation in their abilities to take medical histories, perform complete physical examinations, synthesize findings into a diagnosis, formulate treatment plans, and document and present information in a concise, logical and organized fashion. During the clinical clerkships, students learn to use the biomedical literature and other educational resources in the service of their patients and in self-directed learning. Students also use their personal experiences and rapidly expanding knowledge of human behavior and ethnic, cultural, socioeconomic and other social factors to develop their own personal standards of compassionate, respectful and ethical behavior in the practice of medicine.

**Clinical Directors 2017-2018 (Required Clerkships)**

Clinical clerkship (third year) is a 48-week academic year.

**M25 Medicine 710 Medicine Clerkship**
Director: Thomas De Fer, MD
Coordinator: Amber Specter

**M35 Neurol 720 Neurology Clerkship**
Director: Robert Naismith, MD
Coordinator: Chrissy McIntosh

**M45 ObGyn 730 OB-GYN Clerkship**
Director: Tammy Sonn, MD
Coordinator: Trish Werner

**M65 Peds 760 Pediatric Clerkship**
Director: Michele Estabrook, MD and Colleen Wallace, MD
Coordinator: Liz Scott

**M85 Psych 770 Psychiatry Clerkship**
Director: Brendan O’Connor, MD
Coordinator: Tammie Repko

**M95 Surgery 790 Integrated Surgical Disciplines Clerkship**
Director: John Kirby, MD and Kate Bernabe, MD
Coordinator: Douglas Brown, MD

**Fourth Year**

The overall goals of the fourth year are to consolidate, enhance and refine the basic clinical skills developed during the clinical clerkships and to explore specialty areas within the field of medicine. This is accomplished by providing each student with optimal preparation for selecting and pursuing graduate medical education opportunities in their chosen field of medical practice and/or research. Students may select from a broad array of clinical rotations and research experiences and may arrange extramural experiences. Fourth year is also an opportunity to synthesize the learning from third year in preparation for clinical residency. Toward this end, students are required to complete a Capstone course prior to graduation.

To qualify for the Doctor of Medicine degree at Washington University School of Medicine, fourth-year students are required to participate in a minimum of 32 weeks of electives (full-time clinical or research courses) and a required four-week Capstone course. Twenty weeks of the minimum required time for the elective year must be taken exclusively in residence in the Washington University School of Medicine elective course program. A complete listing of fourth-year elective offerings at Washington University School of Medicine is available through the Office of the Associate Dean for Medical Student Education. Students may participate in clinical electives of four weeks duration. If a student takes a research elective, that elective must be of at least six weeks duration.

A maximum of 12 weeks of credit is allowed for full-time elective course work taken at other academic institutions. These may be
clinical or research electives. Students desiring credit for work to be done at other institutions must petition the Associate Dean for Medical Student Education. Absolutely no credit will be granted for electives undertaken prior to approval from the appropriate administrative committees.

Credit may be given for elective work done at any point in the standard four-year Doctor of Medicine degree program as long as participation conforms to current elective guidelines, and a) the student is a duly registered, full-time student for a minimum of three years and nine months, including scheduled vacation time, and tuition is paid for four complete academic years; or b) if transferring into the third-year class, the student is a duly registered, full-time student for a minimum of 22 months and tuition is paid for two complete academic years.

Students are encouraged to take lecture-seminar elective courses, but such offerings are optional. Clock hours for the year total 1,386 (36 weeks). Remuneration for work done while participating in electives for credit is prohibited.

**Electives**

Fourth year is a 44-week academic year.

Electives course listings (https://acadinfo.wustl.edu/CourseListings/AttributeCourses.aspx?type=sem&attrvalue=wusmec dept=M10&sem=YR2017) can be found online.

**Capstone**

*M80 InterDis 849 Fourth Year Capstone Course*
Gina LaRossa, MD
The fourth-year medical student Capstone course is designed to complete the student's preparation for internship. The course was created to provide the high value, practical knowledge and experiences required for a successful transition from medical student to intern. To accomplish this goal, we've created a curriculum that focuses on interactive didactic sessions in the morning, which cover a broad spectrum of medicine, and afternoon sessions, which concentrate on procedural skills, acute care simulation, and intern skills workshops. Besides the general knowledge and skills that are covered in the main sessions, specialty-specific sessions are included which focus on giving students in specific career paths knowledge and skills particular to that specialty.

It is our hope that after this month rotation, the student will feel less anxious about beginning a career in medicine and will feel more prepared to face the challenges and thrills of patient care.

**Postgraduate Residency**

Postgraduate residency training is essential preparation for the practice of medicine. Most School of Medicine graduates serve three or more years of residency training, and many will gain additional experience as postdoctoral fellows.

To aid students in obtaining desirable residency appointments, an active counseling program is maintained through the School of Medicine's Career Counseling office. Students in their preclinical years can participate in Career Counseling events, such as career talks hosted by individual specialties, and are provided resources for choosing their specialty. Students are encouraged to look at their own interests, attributes, lifestyle and other priorities and, with this information, begin to make decisions about the specialty best suited for them. In addition, students are encouraged to meet with clinical advisers and faculty members from a variety of specialty divisions at Washington University to learn more about the fields in which they are interested. The Career Counseling office maintains a website where students can find information regarding 20 residency specialties (http://residency.wustl.edu/Choosing/SpecDesc/Pages/Home.aspx).

Throughout their final year in medical school, students are invited to interact closely with the Career Counseling office through individual meetings and instruction on how to plan for the residency application and interviewing process. The number of U.S. seniors applying in the NRMP Match each year has been steadily increasing. The match process continues to be competitive, and students must make their choices with considerable care.

The School of Medicine maintains an active interest in its graduates and is pleased to assist them in subsequent years as they seek more advanced training or staff appointments in the communities in which they settle.

**Postdoctoral Training**

Those departments that offer postdoctoral fellowships individualize such educational activity up to a maximum of 36 months of academic time. Such fellowships lead integrally to certification by the appropriate specialty and/or subspecialty boards of the American Medical Association.

**Fellowship and Other Funds**

**Alexander and Gertrude Berg Fellowship Fund.** Created in 1952 through the bequest of Gertrude Berg to provide a fellowship in the Department of Molecular Microbiology.

**Glover H. Copher Fellow in Surgical Research.** Established in 1971 to support a postdoctoral fellow in surgery.

**William H. Danforth Loan Fund for Interns and Residents in Surgery.** Provides financial assistance in the form of loans for postdoctoral students in surgery.

**Ron and Hana Evens Fellowship.** Established in 2014 to support a postdoctoral fellowship in the Mallinckrodt Institute of Radiology.
Antonio Hernandez, Jr. Fellowship in Pediatric Cardiology. Established in 1987 as a memorial to Dr. Hernandez.

Leopold and Theresa Hofstatter Fellowship. Established in 2000 from the estate of Leopold and Theresa Hofstatter to be used to support fellowships in neurological research.

J. Albert Key Fellowship Fund. Provides a stipend for a fellow in orthopaedic surgery.

Louis and Dorothy Kovitz Fellowship Fund. Established in 1970 by an alumnus and his wife to provide support for research by qualified residents or students interested in surgery, at the discretion of the head of the Department of Surgery.

Carol B. and Jerome T. Loeb Teaching Fellowships at the School of Medicine. Established in 2004 to honor and thank St. Louis-area physicians with clinical excellence to encourage teaching that excellence to residents and students.

Stephen I. Morse Fellowship. Established in 1980 by Carl and Belle Morse in memory of their son; awarded to predoctoral or postdoctoral students pursuing research careers in microbiology, immunology and infectious diseases.

William D. Owens Anesthesiology Research Fellowship. Established in 2000 in honor of William D. Owens, MD. This fund will allow an individual to do a clinical or basic research fellowship for a two-year period.

The Esther and Morton Wohlgemuth Foundation Fellowship. Established to support a fellow in the Division of Cardiovascular Diseases.

Continuing Medical Education

The study of medicine is a lifelong process with continuing medical education being an integral component of the continuum. Since 1973 the School of Medicine has supported this learning endeavor through the operation of the Continuing Medical Education (CME) Program. The Program's mission is to collaborate with teams of health care professionals and/ or individual members of the health care team to provide opportunities for educational renewal and advancement in order to facilitate lifelong learning, maintenance of professional competencies, and enhancement of knowledge and skills to improve performance, clinical care and patient outcomes.

Pursuant to this mission the objectives of the CME program include the following:

- Enable the acquisition of new knowledge and skills for the delivery of quality patient care
- Translate the results of research to clinical diagnosis and treatment for health care practitioners
- Apply educational approaches in support of continuous quality improvement and patient safety in health care delivery
- Integrate clinical outcome measures into the educational process
- Assist with adaptation to changing health care delivery environments
- Support faculty development as postgraduate medical educators and leaders
- Evaluate and refine educational activities

Each year more than 160 symposia and more than 180 recurring academic rounds and conferences as well as videos, monographs, and self-directed learning are provided with CME credit by this office. About 9,000 registrants attend these courses annually and receive more than 110,000 hours of instruction. CME Online provides educational programs via the internet. Since starting in 2000, the CME online program (http://cme.wustl.edu) has grown to include more than 250 hours of available CME credit. The educational program is fully accredited by the Accreditation Council for Continuing Medical Education and provides credits to physicians pursuant to the Physician's Recognition Award of the American Medical Association, as well as various other types of state and specialty recertification and relicensure activities.

Career Advising

In addition to the advising programs described, students seek informal advising from faculty with whom they have had contact, either through classroom work, research or clerkships. Students also have faculty contact through membership in the academic societies. Many of the specialty-specific student interest groups and other student-run programs provide opportunities for clinical shadowing and informal advising.

Student advising occurs within two broad programs: Academic Advising and Career Counseling:

1. Academic Advising: For more information regarding first-year and second-year advising, please visit the Office of Medical Student Affairs (http://bulletin.wustl.edu/medicine/departments/medical-student-affairs) page of this Bulletin.

2. Career Counseling: As they prepare for their final year of medical school, students have the opportunity to select a career adviser from a list of faculty in the field in which the student plans to seek a residency position. The career advisers have responsibility for reviewing the student's choice for fourth-year electives and making appropriate recommendations for the structure and content of the elective year. In addition, at the beginning of their final year of medical school, students are required to meet with the assistant dean for Career Counseling in preparation for writing their Medical Student Performance Evaluation (MSPE or Dean's Letter). At this meeting and throughout their final year, the assistant dean discusses the student's long-term educational and career goals, helps choose residency programs that meet these goals, reviews their residency application, and supports construction of their program rank list. The assistant dean for Career Counseling is also available to students at any point in their medical
school career to provide individual counseling in planning for choosing a specialty, as well as the residency application and match process. For more information visit the Career Counseling Office (http://residency.wustl.edu/Pages/NewHome.aspx) website.