

# Doctor of Medicine

## Admissions

### Admission Requirements for the Study of Medicine

Entrance requirements for the School of Medicine include the following:

1. Evidence of superior intellectual ability and scholastic achievement;
2. Completion of at least 90 semester units of college courses in an approved college or university;
3. Completion of the Medical College Admission Test of the Association of American Medical Colleges; and
4. Evidence of character and integrity, a caring and compassionate attitude, scientific and humanitarian interests, effective communication skills, and motivation suitable for a career in medicine.

Chemistry, physics and mathematics provide the tools for modern biology, for medicine and for the biological basis of patient care. Thus, a firm grounding in these subjects is essential for the study of medical sciences. Entering students are expected to have accomplished at least the equivalent of one-year courses at the undergraduate level in physics and biology; mathematics through calculus; and chemistry, including one year of general or inorganic chemistry and one year of organic chemistry. Course work in biochemistry is encouraged although not required. In addition, one semester of biochemistry can be substituted for one semester of organic chemistry. Similarly, one semester of statistics can be substituted for one semester of calculus. In selected instances, one or more of these prerequisites may be waived by the Committee on Admissions, but applicants are strongly advised to pursue their interests in these and other areas of science.

A major goal of undergraduate college work should be the development of the intellectual talents of the individual. This often involves the in-depth pursuit of some area of knowledge, whether in the humanities, the social sciences or the natural sciences. At the same time, a diversity of background is encouraged in to provide a necessary foundation for the development of cultural awareness, sensitivity and competence. Specific courses (other than the few in the natural sciences) are not prerequisites, because a great variety of courses and life experiences may prepare students for the many roles they may play in their medical careers.

*The admission requirements for the study of medicine were last reviewed by the Committee on the Oversight Medical Education on May 2, 2022.*

## Technical Standards Statement

Washington University welcomes diverse applicants, including those with physical, sensory, learning, psychological, and chronic disease-related disabilities. The School of Medicine is committed to advocating for its students with disabilities and to educating a medical workforce that mirrors the diversity of the national population. We aim to be leaders in accessibility and inclusion.

Individuals seeking to graduate from Washington University with a Doctor of Medicine degree are expected to gain broad competence in the skills that underlie the practice of medicine and surgery. With or without accommodations, they must have the knowledge, attitudes, and skills necessary to meet the School of Medicine's educational program objectives and meet the Technical Standards outlined in the Washington University School of Medicine Technical Standards for the Medical Program (<http://bulletin.wustl.edu/medicine/policies/md-technical-standards/>), which is available in the Policies & Guidelines section (<http://bulletin.wustl.edu/medicine/policies/>) of this *Bulletin*.

## Application Procedure

General information for prospective medical students and instructions for how to apply can be found on the Medical Student Admissions website (<http://mdadmissions.wustl.edu/>).

Washington University School of Medicine participates in the American Medical College Application Service (AMCAS) of the Association of American Medical Colleges. AMCAS provides a centralized system for applying to any participating medical school with only one application and one set of official transcripts of academic work.

The AMCAS Application for Admission (<https://students-residents.aamc.org/applying-medical-school/applying-medical-school-process/applying-medical-school-amcas/>), which is common to all participating medical schools, is available online. Applicants are urged to file their applications as early as possible.

Applicants to the first-year class must submit their AMCAS application no later than November 30 of the year prior to that in which they want to matriculate. In addition, applicants must complete a supplemental application (<https://mdapply.wustl.edu/>), submit letters of recommendation, and pay a nonrefundable application fee of \$100. These materials must be received no later than December 7. The Committee on Admissions will only evaluate an application when it is complete.

Selected applicants are invited for a personal interview as well as a tour of the School of Medicine and the Washington University Medical Center. This visit provides extensive opportunities for the applicant to meet and talk with students and faculty members.

Admission decisions are made by the Committee on Admissions on a rolling schedule beginning in early November. Applicants are notified as soon as a final decision has been made on their application. By April 15, every applicant should be notified whether they are accepted, on the waiting list or not accepted.

After the applicant has been accepted, matriculation is contingent upon sustained superior academic performance as well as continued ethical, honest and mature deportment. Accepted applicants must report to the Registrar of the School of Medicine all institutional judicial or academic sanctions and/or legal actions in which they have been a party prior to matriculation at the School of Medicine. Accepted applicants must report all institutional judicial and academic charges and/or legal charges brought against them before matriculation at the School of Medicine, where such charges could result in sanctions. Concealing or failing to report such sanctions and/or charges promptly and, more generally, failing to maintain high standards of moral and ethical behavior may result in rescission of acceptance, dismissal from the School of Medicine, or revocation of the Doctor of Medicine degree.

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## Acceptance Protocols

As a participant in the American Medical College Application Service (AMCAS), the Washington University School of Medicine (WUSM) abides by the Application and Acceptance Protocols (<https://students-residents.aamc.org/applying-medical-school/article/application-and-acceptance-protocols-applicants/>) established by the Association of American Medical Colleges and encourages students to use the accompanying AMCAS Choose Your Medical School Tool (<https://students-residents.aamc.org/applying-medical-school/article/amcas-choosing-your-medical-school-tool/>). Applicants holding at least one acceptance from any medical school will have the option to “Plan to Enroll” in mid-February.

Per WUSM Admissions policy, applicants who have been offered admission to WUSM and who intend to matriculate at WUSM should indicate that they “Plan to Enroll” through the Choose Your Medical School Tool as soon as possible but by no later than April 30 of the year in which they will matriculate. WUSM reserves the right to rescind offers of acceptance if an applicant has not selected “Plan to Enroll” by April 30. After April 30, although applicants will maintain their “Plan to Enroll” status at WUSM, they may continue to hold positions on the waitlists of other schools.

Beginning April 30, accepted applicants have the option to “Commit to Enroll” at WUSM. When an applicant selects “Commit to Enroll” at WUSM, they should notify all other institutions where they hold an acceptance or position on the waitlist that they wish to withdraw their acceptance or position from the waitlist of that school. WUSM reserves the right to rescind an offer of admission to any applicant still holding an active acceptance at another institution while having a “Commit to Enroll” status with WUSM. WUSM reserves the right to rescind offers of admission from any applicant still holding a WUSM acceptance while indicating that they either “Plan to Enroll” or “Commit to Enroll” at another institution after April 30.

For applicants accepted after April 30, the timeline for selecting “Plan to Enroll” will be specified by the Associate Dean for Admissions.

All MD applicants planning to matriculate at WUSM should select the “Commit to Enroll” option no later than one week before the first day of orientation.

Should an applicant have an extenuating circumstance preventing compliance with this policy, it is the applicant’s responsibility to notify the WUSM Admissions Office and seek an extension or exception.

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## Merit-Based Scholarships

Merit-based scholarships are awarded in various amounts as funds allow. Recipients are selected based on their personal and academic accomplishments and their perceived potential to lead and contribute to the profession. There are multiple full and partial awards available. All accepted students are considered for merit-based scholarships without additional applications. Please consult the Financial Information section (<http://bulletin.wustl.edu/medicine/financial/>) of this *Bulletin* for further details.

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## Background Checks and Screening for Controlled Substances

Students entering the School of Medicine and who will have contact with patients are required to undergo criminal background checks and screening for controlled substances (e.g., THC/cannabis, cocaine, opiates, amphetamines, phencyclidine) to qualify for participation in patient care activities at WUSM-affiliated facilities. Drug screening usually will be conducted during student orientation prior to the start of classes. Incoming prematriculant students and visiting students will be disqualified to study at the School of Medicine if they do not consent to background checks, if they have significant positive findings on the background checks, or if they have illicit substances detected on drug screening without a bona fide medical indication. Disqualified prematriculant students and disqualified visiting students will be precluded from matriculation and will not be registered as students in the School of Medicine.

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## Important Dates

- AMCAS application (<https://students-residents.aamc.org/applying-medical-school/applying-medical-school-process/applying-medical-school-amcas/>) deadline: November 22, 2023
- WUSM supplemental application (<https://mdapply.wustl.edu/>) deadline: November 30, 2023
- “Plan to Enroll” required: April 30, 2024

Visit the Important Dates page (<https://mdadmissions.wustl.edu/how-to-apply/important-dates/>) of the Admissions website for a complete list of dates and deadlines.

## Advanced Standing Transfers

Due to the specifics of the new Gateway Curriculum, Washington University School of Medicine does not accept advanced standing (transfer) students from other medical schools. For more details of this policy, please refer to the Washington University School of Medicine Advanced Standing Transfers Policy for Medical Students. (<http://bulletin.wustl.edu/medicine/policies/md-advanced-standing-transfers/>)

**Visit the Medical Student Admissions website (<http://mdadmissions.wustl.edu/>) for full admissions information and to check the status of an application.**

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## Curriculum

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.

## Accreditation

The Washington University School of Medicine's MD program is nationally accredited by the Liaison Committee on Medical Education (LCME (<https://www.aamc.org/services/first-for-financial-aid-officers/lcme-accreditation/>)). The LCME is recognized by the U.S. Department of Education as an accrediting agency for medical education programs leading to the MD degree.

Most state boards of licensure require that applicants graduate from a U.S. medical school accredited by the LCME as a condition for licensure. In addition, most state boards of licensure require that U.S. applicants take and pass the United States Medical Licensing Examination (USMLE (<https://www.usmle.org/>)). For U.S. medical students to be eligible to sit for the USMLE, their school must be accredited by the LCME. Graduates of LCME-accredited schools are also eligible for residency programs accredited by the Accreditation Council for Graduate Medical Education (ACGME (<https://www.acgme.org/>)).

The School of Medicine has determined that, as a result of its LCME accreditation, its MD program curriculum meets the educational requirements to sit for the USMLE and to pursue licensure and certification in all states and territories of the United States and Washington, DC.

## For Students Entering the MD Program in July 2020 or After:

The Gateway Curriculum ensures that students are not only exceptional physicians but that they are also prepared to lead the transformational changes needed to improve the future of health care delivery and the understanding of health and social determinants of health. The curriculum will include three phases.

## Phase 1

Phase 1 will consist of 62 total weeks of curricular time: 1 week of orientation, 46 weeks of Integrated Science Foundational Modules, 9 weeks of Clinical Immersions, 4 weeks of the EXPLORE Immersion, and 2 weeks of Phase 1 Capstone.

The Integrated Foundational Science Modules will present core science content in fundamental areas (basic, clinical, social, behavioral, and health system sciences). The Clinical Immersions consist of clinical experiences that are authentic, varied in content, and appropriate for the student's level of ability. Every student will have an immersion in each of the following areas: inpatient, ambulatory, and procedural. Throughout Phase 1, there will be substantial emphasis on professional identity formation and the social, behavioral, and health systems sciences. The EXPLORE Immersion will focus on four key areas: research, medical education, advocacy/global health, and innovation.

## Phase 2

Phase 2 will include 12 months (48 weeks) of clinical clerkship experiences in the content areas of Internal Medicine, Neurology, Obstetrics & Gynecology, Pediatrics, Psychiatry, and Surgery. Each clerkship will begin with one week of specialty-specific foundational science that consists of the purposeful reiteration and expansion of prior material and new material. This material will be taught in a "signs and symptoms" framework in order to facilitate core knowledge transfer to clinical reasoning. Each clerkship will end with one week dedicated to assessment, reflection, coaching, and communities (ARCC).

## Phase 3

Phase 3 will consist of 56 weeks total. Students will engage in 24 weeks of required elements that will include a 4-week Internal Medicine Advanced Clinical Rotation (ACR); two 4-week ACRs (8 weeks total); two 4-week Keystone Integrated Science Courses (KISCs; 8 weeks total); and 4 weeks of Phase 3 Capstone. In addition, students will take 32 weeks of electives (clinical, research, other non-clinical). Up to 8 of the 32 weeks of elective time may be used for USMLE study (4 weeks for Step 1 and 4 weeks for Step 2). Students may use as much elective time for research time as their schedule allows after completing the requirements. During Phase 3, there are 4 weeks of School of Medicine holiday time, and students may also opt to take up to 8 weeks of unscheduled (no credit) time.

## For Students Entering the MD Program Prior to July 2020:

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. Through all four years of the curriculum, key topics known as *Threads* are woven throughout the learning experience, linking clinical and course work and enhancing the learning experience.

The preclinical curriculum provides a science and investigative foundation for future clinical practice. First-year and second-year course work combines basic science taught via a variety of didactic means, including lectures, small groups, simulations and case-based learning. It also includes a Practice of Medicine course that uses regular patient interactions and integrative cases to teach students to skillfully interview and examine patients while integrating current health disparities and issues in the present global spectrum.

In addition, students have the opportunity during their first year to complete four 10-hour selective courses in the humanities, the basic sciences, and various clinical areas, which provides enrichment and in-depth focus on areas beyond the core curriculum. The preclinical curriculum is pass/fail.

The overall goal of the third year is the implementation of the 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, which involve 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 final year of the medical school curriculum, the required elective program helps students to decide where their major interests lie. It also enables them to benefit from the wide range of specialized knowledge and skills found in the faculty, and it lays the foundation for lifelong learning and the application of principles. The elective program permits students to select, according to their desires, the areas that they wish to explore or to study in depth. The fourth year also offers students the opportunity to synthesize the learning from the third year in preparation for clinical residency. Toward this end, students are required to complete a Capstone course prior to graduation.

## Washington University School of Medicine Medical Student Program Objectives

The educational program is designed to ensure that each student will demonstrate the following:

### Foundational Knowledge for Practice

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.
2. Demonstrate knowledge of the epidemiology and basic mechanisms involved in the pathogenesis of common human diseases and their influence on clinical presentation and therapy.
3. Demonstrate basic knowledge of the impact of ethnicity, culture, socioeconomic status, patient and provider biases, and other social factors on health and disease.
4. Demonstrate basic knowledge of the ethical principles and professional values that underpin the medical profession.
5. Demonstrate basic knowledge of the common scientific methods used to study health and disease.
6. Demonstrate basic knowledge of the methods and principles for optimizing value, which include quality measures and cost of health care delivery for patients and populations.

### Patient Care

1. Obtain appropriate medical histories that include psychosocial and behavioral factors that influence health.
2. Perform accurate physical examinations.
3. Participate in clinical procedures as required by the curriculum.
4. Formulate a prioritized differential diagnosis based on the patient's risk factors and clinical presentation.
5. Develop individualized diagnostic and treatment plans across the broad spectrum of acute and chronic conditions.

### Interpersonal and Communication Skills

1. Demonstrate respectful and effective verbal and nonverbal interpersonal and communication skills with patients, families, colleagues, and all members of the educational and health care teams.
2. Discuss preventive strategies and diagnostic and treatment options in a manner that will facilitate the participation of patients and their families in shared decision making.
3. Maintain accurate and thorough medical records.
4. Provide succinct and organized oral patient presentations.
5. Work collaboratively and effectively in teams.

### Professionalism

1. Maintain a professionally appropriate demeanor.
2. Exhibit high standards of professional integrity.
3. Apply legal and ethical principles governing the physician-patient relationship.
4. Act in the patient's best interest, and serve as a patient advocate.

## Systems-Based Practice

1. Recognize the roles of various members of the interprofessional health care team and the scope of their practice.
2. Recognize barriers to and facilitators of high-value patient care, where value equals quality over cost.
3. Demonstrate the ability to identify medical errors when they occur, and describe the individual, team, and/or system factors that may contribute to them.

## Practice-Based Learning and Improvement

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.
2. Apply an evidence-based approach to selecting, appraising and utilizing evidence from scientific studies related to clinical questions and patients' health problems.

## Contact Information

For additional information or specifics about the MD curriculum, please use the following contact information:

Washington University School of Medicine  
 Office of Medical Student Education  
 Bernard Becker Medical Library, 3rd Floor  
 MSC 8033-12-167  
 660 S. Euclid Ave.  
 St. Louis, MO 63110  
 Hours: 8:00 a.m. to 5:00 p.m., Monday through Friday  
 Phone: 314-273-6673  
 Fax: 314-362-6951  
 MD Program Website (<https://md.wustl.edu/>)

## Core Courses

### Gateway Curriculum

#### Phase 1 Core Courses

**Total number of weeks:** 62

#### Integrated Foundational Modules

Specifically regarding the foundational sciences content, what is depicted here is intended to provide a reasonable approximation of how the content could be disbursed across curricular units and to provide a general indication of relative amounts of coverage time allotted to content areas. Modules will include the following:

Code	Title	Units
Gateway 500	Molecules to Society	245
Gateway 505	Defense & Response to Injury	245
Gateway 510	Circulation & Breathing	280
Gateway 530	Ins & Outs	245
Gateway 540	Metabolism & Reproduction	210
Gateway 545	Scaffolding & Movement	140
Gateway 550	Brain & Behavior	245
Gateway 555	Phase 1 Capstone	70

#### Clinical Immersions

Courses in the Clinical Immersions will include the following:

Code	Title	Units
Gateway 515	Clinical Immersion: Ambulatory/ED	105
Gateway 520	Clinical Immersion: Inpatient	105
Gateway 525	Clinical Immersion: Procedural	105

#### EXPLORE Immersion

Code	Title	Units
Gateway 535	EXPLORE Immersion	140

#### Phase 2 Core Courses

**Total number of weeks:** 48

Code	Title	Units
Gateway 600	Internal Medicine Clerkship	308
Gateway 610	Surgery Clerkship	308
Gateway 620	Pediatrics Clerkship	308
Gateway 630	Psychiatry Clerkship	308
Gateway 640	Neurology Clerkship	308
Gateway 650	Obstetrics & Gynecology Clerkship	308

#### Phase 3 Core Courses

**Total number of weeks:** 64

Course numbers/descriptions* found in course listings	Advanced Clinical Rotations (ACRs): three required (12 weeks) (inclusive of IMI; the remaining two must be completed at WUSM)
Course numbers/descriptions found in course listings	Keystone Integrated Science Courses (KISCs): two required (eight weeks) (MSTP students complete 0 KISCs)
Gateway XXX	Phase 3 Capstone
Course numbers/descriptions found in course listings	Electives: 32 weeks (may include four weeks of dedicated USMLE Step Exam study time; students have the option to take four additional weeks if necessary)

\* Course numbers and descriptions can be found in the Washington University course listings (<https://courses.wustl.edu/Semester/Listing.aspx>).

## Graduation Requirements

- All students must pass the Comprehensive Clinical Exam (CCX) (M25 Medicine 833).
- All students are required to take the USMLE Step 1 and Step 1 examinations prior to graduation.

## Department-Based Courses

- Anesthesiology (<http://bulletin.wustl.edu/medicine/departments/anesthesiology/#courses>)
- Biochemistry and Molecular Biophysics (<http://bulletin.wustl.edu/medicine/departments/biochemistry-molecular-biophysics/#courses>)
- Cell Biology and Physiology (<http://bulletin.wustl.edu/medicine/departments/cell-biology-physiology/#courses>)
- Developmental Biology (<http://bulletin.wustl.edu/medicine/departments/developmental-biology/#courses>)
- Genetics (<http://bulletin.wustl.edu/medicine/departments/genetics/#courses>)
- Medicine (<http://bulletin.wustl.edu/medicine/departments/medicine/#courses>) (Internal Medicine)
- Molecular Microbiology (<http://bulletin.wustl.edu/medicine/departments/molecular-biology/#courses>)
- Neurology (<http://bulletin.wustl.edu/medicine/departments/neurology/#courses>)
- Neuroscience (<http://bulletin.wustl.edu/medicine/departments/neuroscience/#courses>)
- Neurosurgery (<http://bulletin.wustl.edu/medicine/departments/neurosurgery/#courses>)
- Obstetrics and Gynecology (<http://bulletin.wustl.edu/medicine/departments/obstetrics-gynecology/#courses>)
- Ophthalmology and Visual Sciences (<http://bulletin.wustl.edu/medicine/departments/ophthalmology-visual-sciences/#courses>)
- Orthopaedic Surgery (<http://bulletin.wustl.edu/medicine/departments/orthopaedic-surgery/#courses>)
- Otolaryngology (<http://bulletin.wustl.edu/medicine/departments/otolaryngology/#courses>)
- Pathology and Immunology (<http://bulletin.wustl.edu/medicine/departments/pathology-immunology/#courses>)
- Pediatrics (<http://bulletin.wustl.edu/medicine/departments/pediatrics/#courses>)
- Psychiatry (<http://bulletin.wustl.edu/medicine/departments/psychiatry/#courses>)
- Radiation Oncology (<http://bulletin.wustl.edu/medicine/departments/radiation-oncology/#courses>)

- Radiology (<http://bulletin.wustl.edu/medicine/departments/radiology/#courses>)
- Surgery (<http://bulletin.wustl.edu/medicine/departments/surgery/#courses>)

## Interdisciplinary Courses

- List of Interdisciplinary Courses (<http://bulletin.wustl.edu/medicine/degrees-offerings/doctor-of-medicine/interdisciplinary-courses/>)

## Research

Students pursuing the Doctor of Medicine degree may receive elective credit for research projects completed during their fourth year. For additional information about the enrollment process and to learn more about research elective opportunities, please email the Electives Office ([wusmelectives@wustl.edu](mailto:wusmelectives@wustl.edu)).

Research opportunities are not mandatory, but the majority of MD students participate in some form of research during their educational career at Washington University School of Medicine. Our Medical Student Research Program provides a wide array of research opportunities to complement different student interests and to suit various career paths. For more information about these research opportunities and the application process, please reference the Office of Medical Student Research website (<https://mdstudentresearch.wustl.edu/>).

## Faculty

### 2023-24 Course & Clerkship Directors

#### Thread Leads

##### Basic Sciences Thread

Amy Bauernfeind, PhD (Anatomy & Embryology/Development)  
Linda Pike, PhD (Biochemistry)  
Ian Hagemann, MD, PhD (Genetics & Genomics)  
Erika Crouch, MD, PhD (Pathology & Histology)  
Simon Haroutounian, PhD, MSc (Pharmacology)  
Lai Kuan Dionne, PhD (Physiology)

##### Basic/Clinical Sciences Thread

Nigar Kirmani, MD (Microbiology & Infectious Diseases)  
Ashley Veade, MD (Women's & LGBTQIA+ Health)

##### Clinical Sciences Thread

Jonathan Mullin, MD (Clinical Skills & Diagnostic Reasoning)  
Timothy Yau, MD (Clinical Skills & Diagnostic Reasoning)  
Suzanne Thibodeaux, MD, PhD (Laboratory Medicine)  
Michelle Miller-Thomas, MD (Radiology)

##### Social, Behavioral, and Health Systems Sciences Thread

Jay Piccirillo, MD, FACS (Clinical Epidemiology & Evidence-Based Medicine)  
Piroska Kopar, MD (Ethics & Law)

Radhika Jain, MD (Health Equity & Justice)  
Kaytlin Reedy-Rogier, MSW (Health Equity & Justice)  
TBD (Health Systems Science)  
Dennis Chang, MD (Interprofessional Collaboration)  
Colleen Wallace, MD (Professional Identity Formation)  
Aimee James, PhD, MPH (Public/Population Health)

#### **Coaching**

Nichole Zehnder, MD  
Amjad Musleh, MD

## Phase 1

#### **Module 1: Molecules to Society**

Colleen Wallace, MD  
Amy Bauernfeind, PhD

#### **Module 2: Defense and Response to Injury**

Erika Crouch, MD, PhD  
Brian Edelson, MD, PhD

#### **Module 3: Circulation and Breathing**

Justin Sadhu, MD, MPH  
Jeffrey Atkinson, MD

#### **Module 4: Ins and Outs**

Steven Cheng, MD  
Sandeep Tripathy, MD, PhD

#### **Module 5: Metabolism and Reproduction**

Linda Pike, PhD  
Marina Litvin, MD  
Amy Riek, MD

#### **Module 6: Scaffolding and Movement**

Kari Allen, PhD  
Mariam Malik, MD  
Allyson Zazulia, MD

#### **Module 7: Brain and Behavior**

Allyson Zazulia, MD  
Brendan O'Connor, MD

#### **Phase 1 Capstone**

Steven Lawrence, MD, MSc

#### **Immersion Lead**

Steven Lawrence, MD, MSc

#### **Ambulatory/ED Immersion**

Kaytlin Reedy-Rogier, MSW  
Heidi Tastet, MD

#### **Procedures Immersion**

Michelle Miller-Thomas, MD  
Erica Traxel, MD

#### **Inpatient Immersion**

Dennis Chang, MD  
TBD

#### **EXPLORE**

Terrance Kummer, MD, PhD (Director, Explore Inquiry Lead)  
Sara Greer, MD (Education Pathway Lead)

Koong-Nah Chung, PhD (Research Pathway Lead)  
Dorina Kallogjeri, MD, MPH (Research Pathway Lead)  
Darrell Hudson, PhD, MPH (Advocacy/Global Health Pathway Lead)  
Caline Mattar, MD (Advocacy/Global Health Pathway Lead)  
Linda Wu, DO (Innovation Pathway Lead)

## Phase 2 Clerkships

#### **Integrated Surgical Disciplines Clerkship**

Bethany Sacks, MD, Med, FACS (Director)  
T.K. Pandian, MD, MPH (Associate Director)

#### **Medicine Clerkship**

Lisa Zickuhr, MD, MHPE (Director)  
Prashanth Thakker, MD (Associate Director)

#### **Neurology Clerkship**

Douglas Larsen, MD, MEd (Director)  
Salim Chahin, MD, MSCE (Associate Director)

#### **Obstetrics and Gynecology Clerkship**

Tammy Sonn, MD, FACOG (Director)  
Katherine Massa, MD (Associate Director)

#### **Pediatrics Clerkship**

Laura Hall, MD (Director)  
Sarah Bram, MD (Associate Director)

#### **Psychiatry Clerkship**

Max Rosen, MD (Director)  
Brendan O'Connor, MD (Associate Director)

## Phase 3 Keystone-Integrated Science Courses (KISCs)

#### **Advancing End-of-Life Care**

Ellen Binder, MD  
Brian Carpenter, PhD  
Patrick White, MD, HMDC, FACP, FAAHPM

#### **Comprehensive Approach to Disability**

Thy Huskey, MD  
Kerri Morgan, PhD, ORT/L, ATP

#### **Diabetes Care from A to Z**

Linda Pike, PhD  
Maamoun Salam, MD  
Alexis McKee, MD, CDCES

#### **Holistic and Interdisciplinary Approach to Surgical Critical Care**

Justin Knittel, MD  
Jessica Nelson, MD

#### **Infectious Diseases and Health Equity**

Caline Mattar, MD  
Darrell Hudson, PhD, MPH

#### **Integrated Oncology: Basic, Clinical, and Social Science Perspectives**

Jason Frankel, MD  
Erica Waters, PhD, MPH

#### **Introduction to Addiction Medicine**

Kevin Baumgartner, MD  
David Liss, MD

T.K. Pandian, MD, MPH

**Multidisciplinary Adult Neuro-Oncology**

Albert Kim, MD, PhD  
Michelle Miller-Thomas, MD  
Sonika Dahiya, MD

**Pediatric Neurocritical Care: Onset to Outcomes**

Jennifer Griffith, MD, PhD  
Mary Hartman, MD, MPH

**Precision Medicine: Incorporating Genomics into Cutting-Edge Patient Care**

Ian Hagemann, MD, PhD  
Felicia Gomez, PhD

**Recognizing and Mitigating Maternal and Infant Health Disparities**

Colleen Wallace, MD  
Jeannie Kelly, MD, MS

**Science, Medicine, and Societal Effects of Pain**

Jordan McCall, PhD, MPH  
Loc Thang, MD, PhD

## Phase 3 Advanced Clinical Rotations (ACRs)

**Pediatrics**

Sarah Bram, MD

**Plastic and Reconstructive Surgery**

Joani Christensen, MD

**Psychiatry**

Marcie Garland, MD

**Radiation Oncology**

Maria Thomas, MD, PhD

**Surgical Critical Care**

Justin Knittel, MD  
Jessica Nelson, MD

**Urologic Surgery**

Erica Traxel, MD  
Gregory Murphy, MD

## Phase 3 Elective Courses and Capstone

**Fourth-Year Electives**

Faculty members within all departments and divisions at Washington University School of Medicine offer a vast selection of clinical elective rotations and independent study opportunities for students in their final year of the MD program.

**Fourth-Year Capstone**

Tosin Adeyanju, MD  
Michael DeVita, MD, FACP  
Suzanne O’Nan, MD