

# MD PROGRAM

## Accelerated Hershey Curriculum

Penn State College of Medicine has a portfolio of 3+ pathways that allow students to select a concentration of study that will enhance/accelerate their professional development. Penn State College of Medicine is a member of the national Consortium of Accelerated Medical Pathway Programs (<https://www.acceleratedmdpathways.org/>) (CAMPP), initially funded by the Josiah Macy Jr. Foundation.

### Option 1: Three-Year MD Accelerated Pathways

The three-year MD Accelerated Pathways provide students the opportunity to complete medical school in three years with directed pathway into one of Penn State's residency programs, pending successful completion of their medical school training. Upon meeting the academic and professional standards for graduation from medical school, students are ranked to match into a Penn State Health residency program through the National Resident Matching Program®. Should students choose to rank Penn State, they would be positioned to match at Penn State College of Medicine for residency.

Penn State's accelerated MD Program is unique in that its pathways are designed to optimize the UME-GME continuum and allow students who already know their career path to progress into one of these specialties: family medicine, internal medicine and psychiatry. There are also accelerated pathways that are designed to accommodate the timelines for MD/PhD students in dermatology, neurosurgery and otolaryngology.

The benefits of the accelerated options include reduction of medical education costs and earlier career entry. The linkage of undergraduate and graduate medical education optimizes opportunities for continuity of patient care, mentoring and advising.

### Option 2: Clinician Scientist and Clinician Educator Pathways

These pathways allow students to achieve school-wide competencies and complete the core graduation requirements in approximately three years while devoting the majority of the fourth year of medical school to either research (Clinician Scientist Pathway) or a Master of Education degree (Clinician Educator Pathway).

MORE INFORMATION ABOUT THE ACCELERATED HERSHEY CURRICULUM (<https://med.psu.edu/md/accelerated/>)

## Curriculum

### Year 1

- **Transition to Medical School**
  - *One week in the middle of July*
  - This course, the first students attend at Penn State College of Medicine, is designed to help them make the transition to medical education and training and to begin to build some of the skills necessary for success in medical school and a career in medicine. The transition to medical school is a very important time in the life of every doctor – no longer in college or a master's program, striving for high grades as an end in and of themselves, or as a ticket to gaining admission to medical school.

These first weeks mark that time when medical students join the collegial ranks of the profession, and medical school represents the first step of on-the-job training. The Transitions series

continues throughout the medical school curriculum as students transition into clinical rotations and prepare for residency.

- **Scientific Principles of Medicine**
    - *End of July to mid-September*
    - This course provides a wide-range of scientific knowledge that underlies medical practice. Relevant material for SPM is drawn from biochemistry, physiology, histology, genetics, cell biology, molecular biology and hematology. In addition, fundamental concepts of pharmacology are introduced. Because of the breadth and depth of material presented in this course, SPM is a team-taught course involving faculty with multiple expertise. As a consequence of this diversity, you will be exposed to a number of different teaching philosophies.
  - **Foundations of Health Humanities**
    - *End of July to end of October*
    - Foundations of Health Humanities is focused on introducing habits of mind, core knowledge, and skills that students will use throughout all four years of medical school. Primary goals will be to address how cultural contexts affect medicine and health care (and vice versa), and how to think and act critically, ethically and with cultural humility in a pluralistic society. The course also focuses on issues of pressing social interest, including structural inequities like racism in medicine, justice and unconscious bias.
  - **Foundations of Health Systems Science**
    - *Mid-July through December*
    - Foundations of Health Systems Science is the first course in the Health Systems Science longitudinal curriculum, which is focused on introducing the foundations of health systems science, including health care structure and process, health care financing, interprofessional roles and teaming, and evidence-based medicine.
- Patient Experience Program**
- A key component of the longitudinal health systems curriculum is the patient experience program (PEP). During the first year, students will a semester serving as guides to help patients navigate through the sometimes-complicated process of getting the care they need. The goals of PEP are for students to:
- i. build a therapeutic patient relationship;
  - ii. take patient histories that include screening and identifying social determinants of health;
  - iii. work with the healthcare team to mitigate the social determinants of health, and;
  - iv. understand interprofessional roles and communicate with interprofessional teams.
- **Foundations of Patient-Centered Care**
    - *Mid-July through mid-June, with breaks*
    - Foundations of Patient-Centered Care (FPCC) is a longitudinal course that spans Phase 1 of medical school training at Penn State College of Medicine. It is administered within a student's respective Society and integrated with other courses. In FPCC, students learn communication, professionalism, history-taking, physical examination, oral presentations, written documentation and clinical reasoning. The primary goal of FPCC is to prepare students to skillfully communicate, interview, examine and assess patients during the third and fourth years of medical school (and

throughout their careers). Coursework, facilitated by Society adviser coaches, includes small group and standardized patient sessions held in the College of Medicine classrooms, as well as applied clinical skills sessions held in inpatient or outpatient settings. This combination of classroom and clinical settings provides students the opportunity to apply learned skills to actual patient encounters.

- **Host Defense/Host Response**

- *Mid-September to early November*
- The Host Defense/Host Response (HDHR) course addresses how the body maintains wellness and responds to threats. The primary learning goals focus on concepts in microbiology and infectious disease, immunology and oncology. This eight-week integrated course spans September to November of the Phase I first year. Problem-based learning (PBL) serves as the course's backbone, complemented by large-group interactive sessions, patient encounters and clinical reasoning sessions. There are also opportunities to integrate Health Systems Science, Health Humanities and frontiers of inquiry to add perspective and depth to the learning experience.

- **Observation and Interpretation**

- *November to mid-December*
- Observation and Interpretation emphasizes the power and importance of observation and interpretation in the practice of medicine. Using works of fine art — painting, music, writing, photography, dance, drama — students will be challenged to refine their observational and analytical skills and to communicate their impressions and findings to others, a process similar to differential diagnosis. Experiencing the arts leads to empathy for the human condition and for individuals.

- **Cardiovascular Medicine and Respiratory Medicine**

- *Mid-November through mid-February, with breaks*
- **Cardiovascular Medicine** Course provides exposure to basic concepts in histology/pathology, biochemistry, physiology, pharmacology, cardiovascular and thoracic anatomy, and clinical medicine related to cardiovascular medicine.
- **Respiratory Medicine:** Introduction to normal and abnormal structure and processes of the respiratory system, principles of therapeutics and factors affecting disease treatment and prevention.

- **Health Systems Science in Context**

- *Mid-January through May*
- Health Systems Science in Context will build on the foundations of health systems science by focusing on the health systems science components of population health, health information technology, economics and value-based care, and healthcare policy.

- **Humanities in Context**

- *Mid-January to mid-June, with breaks*
- Humanities in Context seeks to develop students' humanistic sensitivity, which includes ethical sensitivity, narrative disposition, critical consciousness and navigating complexity and uncertainty. The course will be aligned with the PBL/organ system courses.

- **Renal Medicine**

- *Mid-February to mid-March*
- The course provides an introduction to the physiology, anatomy, pharmacology, microbiology and pathology of the kidneys and urinary tract. Topics include the relationship between structure and function of urinary system; fluid, electrolyte and acid/base homeostasis in health and disease; etiology and manifestations of common diseases of the kidneys; and cellular processes that mediate the actions of pharmacological agents active in the urinary system.

- **Form and Function and Anatomy**

- *Mid-March through early May*
- This course has four major and overlapping components: anatomy, rheumatology, orthopedics and dermatology. The course integrates dermatology, immunology, family medicine (sports medicine), internal medicine (rheumatology), orthopedics, pathology and pediatrics (rheumatology). The subject matter is linked as joint disease connects orthopedics and rheumatology and immunology connects rheumatology and dermatology. The lecture content and problem-based learning cases will help to illustrate the "connectedness" of this block of material.

- **Gastrointestinal Pathophysiology and Nutrition and Anatomy**

- *Early May through mid-June*
- This course provides exposure to the foundational basic science and advanced concepts necessary to understand the approaches used to diagnose, treat and manage disorders of nutrition, the oropharynx, esophagus, stomach, small and large bowel, pancreas, biliary system and liver. Foundational material will include integrative physiology of these organs.

The students will develop the ability to differentially diagnose, describe treatments, and review management of nutritional disorders and support as well as diseases of the GI organs and liver. The pathogenesis, pathology, differential diagnosis, clinical course and complications of GI and liver diseases will be covered, along with aspects of clinical management, especially the pharmacology of drugs used to treat them. The course will augment large-group classroom learning opportunities with problem-based learning, wet laboratory and simulation laboratory experiences.

- **Objective Structured Clinical Examination (OSCE)**

- *May*
- This exam allows students to practice and demonstrate clinical skills in a standardized medical scenario. Students have the opportunity to demonstrate competency in communication, history taking, physical examination, clinical reasoning, medical knowledge, and integration of these skills. It is meant to be a fair and accurate way to assess competence, as well as identify areas that need more work and practice.

- **Medical Student Research**

- *Years 1 and 2*
- Throughout Years 1 and 2, students have the opportunity to do research for the Medical Student Research project.

- **Acceleration Clerkships/Electives**
  - *January through August*
  - This is the time when students will be accelerating their education to allow them to finish in three years.
- **Additional Pathway Courses**
  - *January Year 1 through December Year 2*
  - Additional pathway courses could include a Career Confirmation Elective, Longitudinal Elective, Longitudinal Medicine Clerkship, the Medical Home Longitudinal Course, and/or the Longitudinal Neuroscience Clerkship, depending upon which pathway a student is enrolled in.

## Year 2

- **Medical Student Research**
  - *Years 1 and 2*
  - Throughout Years 1 and 2, students have the opportunity to do research for the Medical Student Research project.
- **Science of Health Systems**
  - *August through December, with breaks*
  - Science of Health Systems is the third course in the longitudinal health systems science curriculum. In this year 2 course, the curriculum expands its focus on the health systems science components of quality improvement and patient safety and introduces methods of design thinking and the application of Six Sigma methodology to improve population health and patient safety. This course also focuses on leadership and preparation for clerkships including individual focus systems in various clinical environments as well as providing instruction on patient-centered care for patients with disabilities.
- **Foundations of Patient-Centered Care**
  - *August through December, with breaks*
  - This course, which spans Phases I and II of medical school training at Penn State College of Medicine, is administered within each student's respective Society and is integrated with other first- and second-year courses. The course consists of three components: communication/clinical interviewing, physical examination, and integration, application and advancement teaching sessions.
- **Endocrinology/Reproductive Medicine and Anatomy**
  - *August through September*
  - The goal of this course is to learn about the general principles, physiology actions, causes and consequences of insufficiency or excess chemical messengers that function as hormones. These principles are then incorporated into the anatomy, histology and physiology of the female and male reproductive system, including pregnancy. Basic disease processes and therapeutics, including pharmacology, are also covered.
- **Communication**
  - *August through December, with breaks*
  - Communication focuses on exploring assumptions and biases that impact communication and communicating in dyads, teams, and larger systems.
- **Neural and Behavioral Science and Anatomy**
  - *Early October to December, with breaks*
  - NBS incorporates basic neuroanatomy, neurophysiology, neurology, neuropathology, neuropharmacology, anesthesia, ophthalmology, radiology, behavioral science, and psychiatry. The goal is for students to understand the structure of the human nervous system, the biological mechanisms that underlie the functions of the nervous system, the neural basis of behavior, and the diagnosis, pathology and treatment of diseases that affect the nervous system by incorporating these topics with clinical relevance. The course also includes pathology wet labs and Neurology Day, where students interact in small groups with about 14 patients who have various neurological disorders.
- **Clerkships**
  - *Beginning at end of February*
  - Required core clinical clerkships begin toward the end of Year 2. Clerkships are taught in two blocks. See clerkship details here (<https://students.med.psu.edu/md-students/clerkships/>).
    - Block 1 clerkships are March of Year 2 through August of Year 3.
    - Block 2 clerkships are September through mid-March of Year 3.
- **Humanities Across Clerkships**
  - *Twice monthly during clerkships, March of Year 2 through mid-March of Year 3*
  - Phase II Clerkships can present emotional, physical and psychosocial challenges for medical students when rotating in the clinical environment for the first time. Humanities Across Clerkships (HAC) is a longitudinal course for medical students engaged in Phase II clerkships to reflect upon issues encountered in the clinical learning environment related to Humanities and career development. Medical students will work together to formulate solutions that will ultimately promote professional identity formation and advance career development while serving as a venue to discuss stressors and challenges. The sessions will be run in a virtual format or in-person and will be facilitated by a trained faculty member in a safe, nurturing and cultivating environment. By the end of the course, medical students will be able to process the challenges of and changes to professional identity while interacting with the clinical learning environment; cultivate individualized skills and tools to advance career development and to deliver patient-centered care; and utilize and solicit near-peer learning and mentorship with compassionate and respectful communication skills.
- **Health Systems in Clerkships**
  - *Throughout all clerkships*
  - Health systems is embedded in the clerkships.
- **Objective Structured Clinical Examination (OSCE)**
  - *December*
  - This exam allows students to practice and demonstrate clinical skills in a standardized medical scenario. Students have the opportunity to demonstrate competency in communication, history taking, physical examination, clinical reasoning, medical knowledge, and integration of these skills. It is meant to be a fair and accurate way to assess competence, as well as identify areas that need more work and practice.
- **USMLE Study**
  - Upon completion of Phase I, students are given a dedicated study period for USMLE I.

- **Acceleration Clerkships/Electives/Acting Internships**
  - *July through end of Year 2*
  - This is the time when students will be accelerating their education to allow them to finish in three years.

### Year 3

- **Clerkships**
  - *End of February Year 2 through mid-March of Year 3*
  - Required core clinical clerkships begin toward the end of Year 2 and continue in Year 3. Clerkships are taught in two blocks. See clerkship details here (<https://students.med.psu.edu/md-students/clerkships/>).
    - Block 1 clerkships are March of Year 2 through August of Year 3.
    - Block 2 clerkships are September through mid-March of Year 3.
- **Humanities Across Clerkships**
  - *Twice monthly during clerkships, March of Year 2 through mid-March of Year 3*
  - Phase II Clerkships can present emotional, physical and psychosocial challenges for medical students when rotating in the clinical environment for the first time. Humanities Across Clerkships (HAC) is a longitudinal course for medical students engaged in Phase II clerkships to reflect upon issues encountered in the clinical learning environment related to Humanities and career development. Medical students will work together to formulate solutions that will ultimately promote professional identity formation and advance career development while serving as a venue to discuss stressors and challenges. The sessions will be run in a virtual format or in-person and will be facilitated by a trained faculty member in a safe, nurturing and cultivating environment. By the end of the course, medical students will be able to process the challenges of and changes to professional identity while interacting with the clinical learning environment; cultivate individualized skills and tools to advance career development and to deliver patient-centered care; and utilize and solicit near-peer learning and mentorship with compassionate and respectful communication skills.
- **Health Systems in Clerkships**
  - *Throughout all clerkships*
  - Health systems is embedded in clerkships.
- **Objective Structured Clinical Examination (OSCE)**
  - *Mid-March*
  - This exam allows students to practice and demonstrate clinical skills in a standardized medical scenario. Students have the opportunity to demonstrate competency in communication, history taking, physical examination, clinical reasoning, medical knowledge, and integration of these skills. It is meant to be a fair and accurate way to assess competence, as well as identify areas that need more work and practice.
- **Electives and Acting Internships**
  - *End of February Year 2 through end of April Year 3*
  - This is the time when students will be accelerating their education to allow them to finish in three years.

- **USMLE Study**
  - *January of Year 3*
  - Upon completion of Phase II clerkships, students are given a four-week dedicated study period for USMLE II CK.
- **Phase III: Residency Prep**
  - *Starting summer between Year 1 and 2*
  - Students enter Phase III: Residency Prep following USMLE Board Prep. This portion of the phase includes Systems-Conscious and Humanistic Medicine. This time provides students with opportunities to refine knowledge and skills as they prepare for entry into residency. This includes a variety of electives, two acting internships and a Humanities selective. The phase is completed by the capstone course, Transition to Internship, followed by graduation.
- **Systems-Conscious and Humanistic Medicine**
  - *Two weeks at the end of March*
  - Phase III begins with a two-week course in Systems-Conscious and Humanistic Medicine. This course revisits key health systems science and humanities concepts in the context of clerkships, while also preparing students for the UME to GME transition. Students will practice advanced clinical skills that require excellence in humanities and systems domains, such as how to perform quality improvement projects, effectively transition care of a patient to a night team or separate team entirely, place orders and call consults, organize a team in urgent care situations, and how to engage in an informed consent dialogue. In addition, the course includes key professional development topics such as instruction on building a personal statement for residency applications, the process of selecting residency programs to which to apply and approaches to residency interview season.
- **Transition to Internship**
  - *Beginning of May*
  - The Transition to Internship course occurs at the end of each student's medical school career and builds on these concepts in preparation for residency training. Transition to Internship is the final requirement for each graduating medical school class, taking place just prior to medical school graduation. Its structure includes both large group workshops (involving the entire fourth-year class) and a number of small group "selective" sessions. Transition to Internship was designed with goals of providing review and practice of key clinical skills and concepts, as well as introduction of new information regarding communication and collaboration with other health professionals, teaching and evaluation strategies for interns in their educator roles and practice in effective patient handoffs. The course also includes time for reflection on professional responsibilities, personal stressors and individual support systems.
- **Graduation**
  - *Mid-May*