Doctor of Medicine

Professional degree: M.D.
Web site: http://www.medicine.uiowa.edu/md/

Professional Program of Study

- Doctor of Medicine

The Doctor of Medicine is a professional degree awarded by the Carver College of Medicine. The college is accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges and meets the requirements of all state licensing boards. Its M.D. diploma admits the holder to all privileges granted to graduates of all medical colleges before such boards.

This catalog section provides information about the Doctor of Medicine curriculum, admission to the program, financial support, and academic rules and procedures.

Doctor of Medicine

The Doctor of Medicine is a four-year program that prepares students to practice primary care medicine and to pursue further education and training in specialized areas of medicine. The program admits 152 new students each year.

The M.D. curriculum is built on a triple-helix model whose three strands extend through all four years of medical school: the clinical and professional skills strand, the mechanisms of health and disease strand, and the medicine and society strand.

Clinical experiences begin during the first few weeks of medical school, and clinical clerkships start after just three semesters of preclinical instruction. By the end of the fifth semester, students have completed all of their core requirements and have the remaining three semesters to tailor their educational experience in preparation for their selected specialty.

Students complete in-depth clinical course work and serve clinical clerkships primarily at University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, and the Des Moines Area Medical Education Consortium. Students also may have opportunities to gain experience in private medical offices and community hospitals.

Graduates may pursue further training in the specialties of family medicine, internal medicine, surgery, and pediatrics at one of 10 University of Iowa-affiliated residency programs in six Iowa cities. They also have access to two transitional-year programs. For more information, contact the Office of Student Affairs and Curriculum and visit Information for Current Students on the Carver College of Medicine web site.

Preclinical Curriculum

The first three semesters of the M.D. program present an integrated core of sciences basic to the study of medicine. They also introduce students to the foundations of clinical practice.

Course work includes human anatomy, foundations of cellular life, a three-course series on clinical and professional skills, a three-course series on medicine and society, and a five-course series on multisystem mechanisms of health and disease. Each of these courses is described below.

Some elective courses are available to students during the first and second years, normally for 1 or 2 s.h. of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician. Courses vary from year to year, but typical subject areas are global health issues, U.S. health care systems, and community health outreach.

The M.D. program's preclinical curriculum requires the following course work.

FIRST SEMESTER

ACB:8101 Medical Gross Human Anatomy: complete dissection of the body with regional emphasis stressing relationships to the living system; clinically relevant areas of radiologic imaging, surface anatomy, embryology, and clinical correlations; anatomical knowledge through lectures, small group work, and independent activities.

MED:8121 Clinical and Professional Skills I: introduction to concepts of clinical reasoning, communication, physical examination, and evidence-based clinical practice; principles of biomedical ethics; early clinical interactions and placement of classroom experiences into the context of patient care through the Longitudinal Clinical Mentor (LCM) Program; interactions with students from other health sciences colleges to explore the interprofessional approach to caring for patients.

MED:8122 Medicine and Society I: delivery of individual disease prevention/health promotion services; introduction to social determinants of health; influence and impact of culture and the community on health care; community resources; students apply health and risk assessment to individual patients and to themselves.

MED:8123 Foundations of Cellular Life: genetics, embryology, molecular biology, biochemistry, cell biology and histology; molecular events required for cellular life; how cells grow and interact to form basic tissues of the human body; framework necessary for exploring the mechanisms of health and disease.

MED:8124 Mechanisms of Health and Disease I: normal and healthy processes within and among mechanisms of oxygenation, metabolism, and genetics/development.

SECOND SEMESTER

MED:8131 Clinical and Professional Skills II: reinforcement of clinical reasoning concepts introduced in MED:8121 and introduction of additional concepts; application of concepts through interactions with standardized patients and through Longitudinal Clinical Mentor clinical visits; varied experiences help students gain a deeper appreciation for issues in biomedical ethics; strengths and barriers involved in providing comprehensive interdisciplinary patient care.

MED:8132 Medicine and Society II: knowledge and skills related to health promotion and disease prevention from a medicine and society perspective, including impact of behavior, environment, culture, and socioeconomics; identification of major public health problems associated with mechanisms of health and disease; focus on public health and epidemiology, with attention to screening, global health, and environmental hazards.

MED:8133 Mechanisms of Health and Disease II: normal and healthy processes within and among mechanisms of
immunology/inflammation, locomotion/integument, and neuropsychiatry.

MED:8134 Mechanisms of Health and Disease III: abnormalities or disruptions leading to disease within and among mechanisms of oxygenation, metabolism, and genetics/development.

THIRD SEMESTER

MED:8221 Clinical and Professional Skills III: advanced clinical reasoning skills gained through focused patient encounters and interactions with special patient populations; emphasis on students’ ability to integrate and use concepts from the M.D. curricular strands that are required for cost-conscious, patient-centered, interdisciplinary care.

MED:8222 Medicine and Society III: health services organization and delivery, with emphasis on community dimensions of medical practice and patient safety.

MED:8223 Mechanisms of Health and Disease IV: abnormalities or disruptions leading to disease within and among mechanisms of immunology/inflammation, locomotion/integument, and neuropsychiatry.

MED:8224 Mechanisms of Health and Disease Keystone: transition from classroom instruction in MED:8124, MED:8133, MED:8134, and MED:8223 to clinical practice; foundational information from those courses approached from the perspective of common clinic encounters; diagnostic and management decisions about common important clinical problems using the foundational knowledge gained from those courses.

Clinical Curriculum

Students complete two weeks of skills training in MED:8320 Transition to Clerkships prior to the start of clinical clerkships. The two-and-a-half year clinical component of the medical curriculum is comprised of supervised hands-on clinical training at the bedside on in-patient units, in outpatient clinics, and in communities throughout the state. In contrast to the preclinical semesters, the clinical years vary according to a student’s individual needs. This period of training begins in January of the second year with 44 weeks of core clerkships. Students then enter various pathways where they complete a minimum of twelve weeks of selectives, four weeks of emergency or critical medicine, one four-week subinternship, and thirty-two weeks of advanced electives.

After completing the core clerkships, students must successfully complete Step 1 of the United States Medical Licensing Examination (USMLE) before they may be promoted to the pathways component of the curriculum. Students take Step 2 of the USMLE during the fall of their fourth year of the M.D. program.

After completing MED:8320 Transition to Clerkships, students begin 42 weeks of core clerkships.

All M.D. students are required to pass Step 1 of the U.S. Medical Licensing Examination before they may be promoted to the third year of the M.D. program.

During the third and fourth years, students complete the 42 weeks of core clerkships, and follow that with a minimum of 20 weeks of selectives and 18 weeks of electives.

Primary venues for clinical training of medical students include University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, and the Des Moines Area Medical Education Consortium. Students also participate in the family practice preceptorship and the community-based primary care clerkship, which are off-campus rotations. Other courses may be assigned to off-campus sites, as well.

The M.D. program's clinical curriculum requires the following clerkships and selectives.

GENERALIST CORE

M.D. students complete the generalist core during the fourth and fifth semesters. It consists of the following 42 weeks of clerkships.

<table>
<thead>
<tr>
<th>Clerkship</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAM:8301 Preceptorship in Family Medicine</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>IM:8301 Inpatient Internal Medicine</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>IM:8302 Outpatient Internal Medicine</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>IM:8458 Community-Based General Internal Medicine</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>NEUR:8301 Clinical Neurology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>OB:8301 Clinical Obstetrics and Gynecology</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>PEDS:8301 Clinical Pediatrics</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>PSYC:8301 Clinical Psychiatry</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>SURG:8301 Clinical Surgery</td>
<td>6 s.h.</td>
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</tbody>
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SELECTIVES

After finishing the generalist core, M.D. students complete 14 weeks of selectives chosen from these.

<table>
<thead>
<tr>
<th>Clerkship</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ANES:8301 Clinical Anesthesia</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>DERM:8301 Clinical Dermatology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>IM:8303 Electrocardiography</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>OPHT:8301 Clinical Ophthalmalogy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>ORTH:8301 Clinical Orthopaedics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>OTO:8301 Clinical Otolaryngology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>PATH:8301 Laboratory Medicine in Clinical Practice</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>RAD:8301 Clinical Radiology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>URO:8301 Clinical Urology</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

OTHER REQUIRED CLERKSHIPS

M.D. students complete the following additional required clerkships and other work during the third and fourth years.

<table>
<thead>
<tr>
<th>Clerkship</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency medicine or critical care medicine</td>
<td>(4 weeks)</td>
</tr>
<tr>
<td>One subinternship (4 weeks during the fourth year)</td>
<td></td>
</tr>
<tr>
<td>Advanced electives (total of 18 weeks during the fourth year)</td>
<td></td>
</tr>
</tbody>
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Joint M.D./Graduate Degrees

The Carver College of Medicine offers a joint M.D./Ph.D. program for students who are interested in a career that combines clinical and academic medicine with basic and clinical research; see Medical Scientist Training Program in the Catalog.

The college also collaborates with other University of Iowa colleges to offer the joint M.D./M.B.A. program with the Tippie College of Business; the joint M.D./J.D. program with
the College of Law; and the joint M.D./M.P.H. program with the College of Public Health.

Students must be admitted to both of the individual degree programs before they may be admitted to the joint degree program. Those interested in joint M.D./graduate degree programs must make arrangements with the appropriate graduate department and with the Carver College of Medicine associate dean for student affairs and curriculum.

Admission

The Carver College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit centralized application processing service for applicants to U.S. medical schools. AMCAS applications are available for completion in May of the year preceding the beginning of the class for which application is being made. Prospective students are urged to apply as early as possible. The deadline for AMCAS submission is November 1.

Secondary applications are forwarded to applicants whose AMCAS applications pass a review conducted by the college. A $60 fee must accompany the secondary application from all applicants.

Admitted applicants must have an official transcript from each college they have attended sent to the University's Office of Admissions.

Technical Standards for Admission and Retention

The Carver College of Medicine seeks students who will serve the needs of society best, and it strives to graduate skilled and effective physicians. To achieve these goals, it applies the following principles and technical standards to candidates for admission and to continuing students.

PRINCIPLES

Technical standards refer to criteria that go beyond academic requirements for admission and are essential to meeting the academic requirements of the M.D. program. Applicants to the Carver College of Medicine and students continuing in the college, with or without disabilities, are expected to meet the same requirements.

Matriculation and continuation in the college assume a certain level of cognitive and technical skill. Medical students with disabilities are held to the same fundamental standards as their nondisabled peers. Although not all students should be expected to gain the same level of proficiency with all technical skills, some skills are so essential that mastery must be achieved, with the assistance of reasonable accommodations where necessary.

Reasonable accommodations are provided to assist in learning, performing, and satisfying the technical standards.

Every reasonable attempt is made to facilitate the progress of students, providing that such efforts do not compromise collegiate standards or interfere with the rights of other students and patients.

TECHNICAL STANDARDS

Applicants for admission to the Carver College of Medicine and continuing students must possess the capability to complete the entire medical curriculum and be granted the degree. To this end, they must complete all courses in the curriculum successfully. In order to acquire the knowledge and skills to function in a broad variety of clinical situations and to provide a wide spectrum of patient care, M.D. students must have abilities and skills in six areas, including observation; communication; motor skills; intellectual, conceptual, integrative, and quantitative abilities; behavioral and social attributes; and cultural competence.

Technological compensation can be made for some disabilities in certain areas, but each student must meet the essential technical standards in such a way that he or she is able to perform in a reasonably independent manner. The use of a trained intermediary is not acceptable in many clinical situations, because it implies that the student’s judgment must be mediated by someone else’s power of selection and observation.

Observation: Students must have the functional ability to observe demonstrations and experiments in the basic sciences and must have sufficient use of the senses necessary to perform a physical examination.

Communication: Students must be able to relate reasonably to patients and establish sensitive, professional relationships with patients, colleagues, and staff. They are expected to communicate the results of the history and examination to the patient and to their colleagues with accuracy, clarity, and efficiency.

Motor: Students are expected to participate in basic diagnostic and therapeutic maneuvers and procedures. Those who cannot perform these activities independently should be able to understand and direct the methodology involved in such activities.

Intellectual, conceptual, integrative, and quantitative abilities: Students must be able to learn to analyze, synthesize, solve problems, and reach reasonable diagnostic and therapeutic judgments. Students are expected to be able to display good judgment in the assessment and treatment of patients. They must be able to learn to respond with prompt and appropriate action in emergency situations.

Behavioral and social attributes: Students are expected to be able to accept criticism and respond with appropriate modification of their behavior. Students also are expected to possess the perseverance, diligence, and consistency necessary to complete the M.D. curriculum and enter the independent practice of medicine in a reasonable period of time. They must demonstrate professional and ethical demeanor and behavior in all dealings with peers, faculty, staff, and patients.

Cultural Competence: Medical students must be able to communicate with and care for persons whose culture, sexual orientation, or religious beliefs are different from their own. They must be able to perform a complete history and physical exam on any patient regardless of the student’s or the patient’s race, religion, ethnicity, socioeconomic status, gender, age, or sexual preference. Similarly, students must be able to interact professionally with colleagues and other health care professionals without regard to race, religion, ethnicity, socioeconomic status, gender, age, or sexual preference.

Applicants who may not meet these standards are encouraged to contact the college’s admissions office.
Admission Requirements

Applicants for admission to the Carver College of Medicine must have a bachelor’s degree, or they must be enrolled in a bachelor’s degree program with the expectation of receiving their degree before enrolling in the Carver College of Medicine. Applicants must have earned college credit in the following courses.

Physics: a complete introductory course (one year), including lab instruction.

Mathematics: an advanced college mathematics course or a statistics course.

Chemistry: a minimum of two years of chemistry, which must include general and organic chemistry with labs, and biochemistry.

Biology: a complete introductory course in the principles of biology (one year), with the appropriate laboratories; and an advanced biology course (one semester or quarter); recommended advanced biology courses include molecular and cell biology, human physiology, genetics, and microbiology.

English: two courses, including composition and literature; the requirement may be waived if the applicant’s school has an integrated writing requirement in courses across its curriculum.

Social and behavioral sciences, and humanities: four courses; because writing skills are important in the study and practice of medicine, prospective applicants are encouraged to fulfill this requirement with courses that include a writing component; recommended courses include behavioral psychology, world language, and other courses that encourage appreciation for diversity and cultural competency.

Applicants should have taken the required science courses for a grade rather than electing pass/fail grading.

Fulfillment of these requirements does not guarantee admission to the Carver College of Medicine. The college's admissions committee selects applicants who appear to be best qualified to study and practice medicine. Preference is given to Iowa residents with high scholastic standing. Consideration also is given to outstanding nonresidents.

Applicants are required to take the Medical College Admission Test (MCAT) no earlier than five years before and no later than September of the year of application. To register for the test, see the Medical College Admission Test web site.

Personal interviews are part of the admission process. Candidates invited for an interview are contacted by the admissions committee. An external criminal background check is performed for all admitted students at the time of admission.

All students who enter the Carver College of Medicine are required to comply with the pre-entrance and annual health screening program developed by the University's Student Health Service in cooperation with University of Iowa Hospitals and Clinics; see Requirements and Forms on the Student Health Service web site.

All registered Carver College of Medicine students are required to maintain health insurance (or an equivalent care plan) that satisfies minimum standards of coverage. Insurance coverage must be maintained continuously throughout each year of attendance at the University.

Financial Support

The Carver College of Medicine’s philosophy is that no student should be denied a medical education due to a lack of financial resources. The college's financial aid staff actively seeks sources of aid so that every student interested in a medical education will be able to finance that education.

Financial assistance is provided by the Carver College of Medicine primarily on the basis of demonstrated financial need. Although a limited number of collegiate or institutional grants are available for the most economically disadvantaged students, most aid is in the form of loans. Examples of federal loan programs are the Federal Direct Unsubsidized Stafford/Ford Student Loan, the Federal Perkins Loan, and the Primary Care Loan (PCL). Students also may qualify for Federal Direct Grad PLUS Loans or private loans to supplement their financial aid package.

In addition, the college supports scholarship and loan programs through permanent endowments and/or contributions from alumni and friends of the Carver College of Medicine. These funds are administered by the college's financial aid office and are awarded as a part of a student's total financial aid package. Funds to support short-term emergency loans are available for students with immediate financial need.

A small number of Dean's Scholarships are awarded by the college's admissions office to highly qualified candidates on the basis of their academic excellence, leadership abilities, and their potential to enrich the college. Dean's Scholarships are included in the recipient's overall financial aid package.

To learn more about financial aid, contact the Carver College of Medicine Financial Services office.

Academic Rules and Procedures

Student Promotion

The Carver College of Medicine has established promotion policies and procedures to ensure that each of its graduates has adequate skills, knowledge, judgment, ethical standards, and personal integrity to assume the responsibilities of a medical doctor. The student promotions committee, made up of seven faculty members and two students, performs these duties with the cooperation, advice, and judgment of course directors, faculty members, students, and administrators.

The committee recommends specific actions to be taken when a student's skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. Possible recommendations include dismissal of the student from the college; suspension for a specified period of time; requiring the student to repeat all or any part of the curriculum on academic probation; and allowing the student to continue on academic probation with a full or partial course load. The committee’s recommendations are forwarded for action to the executive dean of the Carver College of Medicine.

Medical students have the right to appeal a promotion decision. They must submit the appeal in writing to the Carver College of Medicine's executive dean within five days of notification of the decision. Appeals are considered by the Appeals Committee, made up of faculty representatives of the Medical Council and the Executive Committee, a medical student, a lay member, and the
associate dean for student affairs (ex officio). Students may request an opportunity to appear before the Appeals Committee to make a statement and answer questions. The committee then makes its recommendation to the college's dean, who is the final authority. Specific information about student promotion policies and procedures is available from the Office of Student Affairs and Curriculum and is online in the Student Handbook.

Leaves of Absence, Withdrawal, Reinstatement
The Carver College of Medicine has established policies regarding leaves of absence, dropping courses, withdrawal from the college, and reinstatement to the college. Information about each of these policies is available at the college's Office of Student Affairs and Curriculum and is published annually in the Student Handbook.

Disputes and Complaints
Student complaints concerning actions of faculty members or departments are pursued first through mechanisms established in the Carver College of Medicine. These procedures allow the greatest flexibility for all concerned in resolving a conflict. They are intended for situations such as grading disputes, alleged academic dishonesty, alleged dishonesty during a clinical rotation, alleged unethical or unprofessional conduct, and perceived discrimination or harassment.

Complaints regarding sexual harassment are handled confidentially in accordance with University policy and procedures; see the University's Policy on Sexual Harassment.

For information about the established informal mechanisms, contact the Office of Student Affairs and Curriculum or see the Student Handbook.