

# Carver College of Medicine

## Vice President for Medical Affairs and Dean

- J. Brooks Jackson

## Executive Dean

- Patricia Winokur

## Senior Associate Dean, Medical Education

- Christopher Cooper

## Senior Associate Dean, Clinical and Translational Science

- Patricia Winokur

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- Douglas Van Daele

## Associate Dean, Graduate and Postdoctoral Studies

- Daniel Tranel

## Assistant Deans

- David Asprey, James Choi, Steven Craig, Amy Lee, Denise Martinez, David Moser, Greg Nelson, Amal Shibli-Rahhal

**Undergraduate majors:** medical laboratory science (B.S.); nuclear medical technology (B.S.); radiation sciences (B.S.)

**Undergraduate certificate:** EMT paramedic program

**Professional degree:** M.D.

**Graduate degrees:** M.A.; M.M.E.; M.P.A.S.; M.S.; D.P.T.; Ph.D.

**Website:** <https://medicine.uiowa.edu/>

The Roy J. and Lucille A. Carver College of Medicine is an integral part of the University of Iowa. It contributes to the education of thousands of University students, is home to ground-breaking research in a wide array of disciplines, and provides a statewide health care resource.

The Carver College of Medicine is the only college in Iowa that offers a curriculum leading to the Doctor of Medicine. It also offers a Bachelor of Science in medical laboratory science, nuclear medicine technology, and radiation sciences (see Undergraduate Programs of Study [p. 1] in this section of the Catalog) as well as Master of Science and Doctor of Philosophy degrees in several disciplines; the Master in

Medical Education; the Master of Physician Assistant Studies; and the Doctor of Physical Therapy (see Graduate Programs of Study [p. 1] in this section of the Catalog).

Doctor of Medicine and other health sciences students have a number of opportunities to gain experience in medical clinics, community hospitals, and a major academic medical center. M.D. graduates may pursue further training in the specialties of family medicine, internal medicine, surgery, and pediatrics at one of 13 University of Iowa-affiliated residency programs in six Iowa cities. The college also participates in the education of students in the Colleges of Dentistry, Nursing, Pharmacy, and Public Health and in the life sciences and health-related programs of the College of Liberal Arts and Sciences, the College of Engineering, and the Graduate College.

Health professionals from throughout the Midwest take part in the college's year-round continuing medical education programming, updating their knowledge and skills through refresher courses, clinics, and conferences. The college also offers a variety of services that support Iowa physicians and community hospitals.

In addition to providing education and resources for physicians and other health care organizations, the college addresses broad public issues of distribution and organization of health care services. Its faculty members advise and serve on national, state, and regional health planning councils, health boards, and various health agencies.

Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges, the Carver College of Medicine 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. All other professional programs administered by the college are accredited by their respective accrediting bodies.

## Professional Program of Study (M.D.)

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. For a description of the M.D. curriculum and information about admission to the program, financial support, and academic rules and procedures, see Doctor of Medicine in the Catalog.

## Programs

### Undergraduate Programs of Study

The Carver College of Medicine offers a Bachelor of Science with majors in medical laboratory science, nuclear medicine technology, and radiation sciences. The medical laboratory science major is offered through a partnership with Allen College, in Waterloo, Iowa. See Medical Laboratory Science, Nuclear Medicine Technology, and Radiation Sciences in the Catalog. In addition, the college offers an undergraduate certificate; see EMT Paramedic Program [p. 5] in this section of the Catalog.

## Graduate Programs of Study

The Carver College of Medicine offers graduate programs leading to the M.S. in pathology; departmental participation and teaching that leads to the Graduate College's M.S. and Ph.D. in biomedical science with subprograms in biochemistry, cell and developmental biology, free radical and radiation biology, microbiology, molecular physiology and biophysics, and pharmacology; the Ph.D. in physical rehabilitation science; the Master in Medical Education (M.M.E.); the Master of Physician Assistant Studies (M.P.A.S.); and the Doctor of Physical Therapy (D.P.T.).

It also offers a joint M.D./Ph.D. degree through the Medical Scientist Training Program; see "Joint M.D./Graduate Degrees" in the Doctor of Medicine section of the Catalog.

Many of the college's faculty members participate in the Graduate College's interdisciplinary programs in genetics, immunology, molecular and cellular biology, and neuroscience.

### Undergraduate Rules and Procedures

Undergraduate study in the Carver College of Medicine is guided by the following academic rules and procedures.

## Health Insurance, Immunizations

All health professions students are required to provide proof of health insurance coverage annually. Contact the University Benefits Office or visit its website.

All health sciences students must show proof of health examinations and screenings annually. For more information, contact Student Health & Wellness and see Requirements and Forms on its website.

## Application for Degree

Students who want to be considered for graduation must submit a Degree Application with the Office of the Registrar through MyUI before the deadline for the session in which the degree is to be conferred. Students who have fulfilled the requirements for a minor must indicate this on the degree application form filed through MyUI so that completion of the requirements for the minor can be verified and noted on their transcript.

## Academic Recognition

The University of Iowa and the Carver College of Medicine recognize academic achievement every fall and spring semester.

## Graduation with Distinction

Graduating students may be recognized for their scholastic achievement upon recommendation by their academic program and with the dean's approval. Graduation with distinction, high distinction, or highest distinction is determined by both the cumulative and the University of Iowa grade-point average. Highest distinction requires a g.p.a. of 3.85 or higher; high distinction requires a g.p.a. of 3.75 to 3.84; and distinction requires a g.p.a. of 3.65 to 3.74.

To graduate with distinction, students must have completed a minimum of 60 s.h. of graded course work at the University of Iowa. Both S (satisfactory) and A-F (letter) grades are included in the total semester hour total. However, S grades are not calculated into the grade-point average. Radiologic technology

certificate course grades are not included in the grade-point average and are not considered graded course work.

Students graduating with distinction have a notation added to their transcript and diploma. To be recognized for distinction, students must have completed 45 of their final 60 s.h. and earned the required grade-point average before their final semester of graduation.

## Dean's List

Undergraduate students who achieve a g.p.a. of 3.50 or higher on 12 s.h. or more of University of Iowa graded course work during a given semester or summer session and who have no semester hours of I (incomplete) or O (no grade reported) during the same semester are recognized by inclusion on the Dean's List for that semester. Students may qualify for the Dean's List with fewer than 12 s.h. of graded credit if deemed appropriate by the college.

## President's List

University of Iowa undergraduate students who achieve a g.p.a. of 4.00 on 12 s.h. or more of University of Iowa graded course work and who have no semester hours of I (incomplete) or O (no grade reported) for two consecutive semesters (excluding summer sessions) are recognized by inclusion on the President's List.

## Financial Support

Students are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement are administered by the University's Office of Student Financial Aid. Part-time work in related areas is sometimes available.

## Registration, Credit, Grading

### Registration

Information about tuition and fees, registration, and deadlines is available from the Office of the Registrar. Students who add or drop a course after registration or who register late are assessed a fee. Each course dropped after the deadline results in a W (withdrawn) on the transcript (see Changes in Registration below). Students are not allowed to register for full-semester courses after the second week of the semester or the first week of the summer session. Students must register for off-cycle courses before the first day of the course.

The maximum permitted registration for fall and spring semesters is 18 s.h. per semester. The maximum registration for summer session varies: 4 s.h. for the four-week session; 9 s.h. for the eight-week session; 9 s.h. for the six- and eight-week sessions combined; 12 s.h. for the four-week session and the eight-week session; and 12 s.h. for the four-, six-, eight-, and twelve-week sessions combined. Students may register for a maximum of 16 s.h. of fall semester or spring semester course work during early registration. Students must obtain permission from the head of the division to register for more than the maximum semester hours allowed.

### Changes in Registration

Students may change their registration on MyUI. After the start of the semester, students must first initiate an add or drop on MyUI and then contact their academic advisor for permission. Additional approvals may be necessary. Changes in registration to off-cycle courses and internships may require a Change of Registration Form.

Courses may be added with the approval of the advisor at any time during the first one-fifth of the course. They may be

dropped at any time during the first two-thirds of the course. Approval is required from the dean of the Carver College of Medicine for all other changes in registration and is granted only in extraordinary circumstances. Students are assigned a mark of W (withdrawn) for any course dropped after the first one-fifth of the course. Students whose drop of one or more courses results in a registration of 0 s.h. for the semester must follow the procedure for withdrawal from the University instead of the add/drop procedure.

Students who have registered for courses offered for variable or arranged credit may change the number of semester hours with the signatures of the instructor, the advisor, and the head of the division at any time before the end of the first two-thirds of the course.

Other changes in registration (such as to audit for zero credit) may be made only during the first one-fifth of the course.

It is the student's responsibility to obtain the required permissions and to understand any consequences that may happen by processing the drop. Information regarding permissions and consequences will be posted on MyUI, but the student should contact their advisor with any questions. See Drop or Withdraw Tuition Responsibility on the Office of the Registrar website.

The Course Deadlines look-up provides course specific deadlines. The cut-off time for obtaining any permissions on deadline days is 4:30 p.m. Students have until 11:59 p.m. to process a drop in MyUI if they have obtained all required permissions by 4:30 p.m.

## Withdrawal of Registration

Removing all courses from a schedule (even if only registered for one course) is considered a withdrawal of registration. Students may withdraw their registration without academic penalty at any time before the end of the first four-fifths of the course, but no credit is subsequently given. Later withdrawal results in automatic assignment of an F. Students who withdraw are not reinstated after the deadline for that session.

It is the student's responsibility to obtain the required permissions and to understand any consequences that may happen by processing the withdrawal. Information regarding permissions and consequences will be posted on MyUI, but the student should contact their advisor with any questions. See Drop or Withdraw Tuition Responsibility on the Office of the Registrar website.

## Auditing Courses

Students may register to audit a course with approval of the appropriate program director and course instructor. In addition to obtaining these signatures, students must register for zero credit in the course to be audited. The mark of AUS (audit successful) is assigned if a student's attendance and performance are satisfactory; if they are unsatisfactory, the mark of AUU (audit unsuccessful) is assigned. Courses completed with a mark of AUS do not meet any college requirement and carry no credit toward graduation. Auditing may not be used as a second-grade-only option.

## Courses Offered by Other University of Iowa Colleges

Students who enroll in courses offered by other University of Iowa colleges are governed by those colleges' rules in matters regarding the courses. See Policy Governing Undergraduate and Professional Students Enrolled in Courses Outside Their

Own College or Degree Program on the College of Liberal Arts and Sciences website.

## In-Residence Requirement

The in-residence requirement may be met by earning the final consecutive 30 s.h. in residence at the University of Iowa, or 45 of the last 60 s.h. in residence, or an overall total of 90 s.h. in residence.

Nonresident instruction includes course work and correspondence study at other colleges, universities, and institutions. Undergraduate course work in other University of Iowa colleges counts toward in-residence requirements.

Because the Carver College of Medicine partners with Allen College for the medical laboratory science major, students are not held to the University of Iowa in-residence requirement.

## Duplication and Regression

Duplication occurs when students take the same course more than once or when they take a course that duplicates the content of a course they already have completed satisfactorily. Regression occurs when students take a course that is less advanced or at a lower level than one in the same subject that they already have completed satisfactorily. Duplication and regression are assessed by the registrar. Semester hours earned by duplication or regression do not count toward graduation.

## Minimum Grade Requirement

Students must earn a g.p.a. of at least 2.00 each semester in all college work attempted, all work undertaken at the University of Iowa, and all graded work attempted after admission to the Carver College of Medicine. Students enrolled in a program that uses the pass/fail/honors grading system must pass all courses required to complete the program.

Students must earn a C or higher in professional specialty (modality) courses.

## Grading Procedures

Grading procedures vary from program to program. Students should consult individual program policy statements for information.

## Pass/Nonpass

Students have the option of taking elective courses pass/nonpass (P/N) with the permission of the course instructor and/or the department offering the course. Students may register for the P/N grading option from the first day of classes until the last day for undergraduates to add a course; see Academic Calendar on the Office of the Registrar website.

To register for a P/N course, the student must print the Grading Option Change Form, have it signed by the course instructor and the academic advisor, and submit the completed form to the UI Service Center before the published deadline.

Semester hours graded P/N are not used in computing a student's grade-point average. Semester hours graded P count toward graduation; those graded N do not. The college accepts a maximum of 15 s.h. of University of Iowa credit graded P toward the bachelor's degree, and it accepts a maximum of 30 s.h. of credit graded P and/or S from all sources (UI and transfer credit) toward the bachelor's degree.

Students must be in good academic standing to be eligible for the pass/nonpass option.

### **Satisfactory/Fail or Satisfactory/Unsatisfactory**

A number of courses only use satisfactory/fail (S/F) or satisfactory/unsatisfactory (S/U) grading. All students registered for these courses receive a grade of S, F, or U. Students do not need special forms or permission in order to register for S/F or S/U courses.

Semester hours graded S or U are not used in computing a student's grade-point average, but semester hours graded F are used in grade-point average computation. Semester hours graded S count toward graduation; semester hours graded F or U do not.

Students may use course work graded S to fulfill General Education Program requirements and/or the requirements of their major, a minor, or a certificate. The college accepts a maximum of 15 s.h. of University of Iowa credit graded S toward the bachelor's degree, and it accepts a maximum of 30 s.h. of credit graded P and/or S from all sources (UI and transfer credit) toward the bachelor's degree.

### **Second-Grade-Only Option**

Repeating courses for the second-grade-only option is allowed in extraordinary circumstances. To repeat a course for the second-grade-only option, students must obtain the permission of the course instructor, the program director, and the dean before the end of the first one-fifth of the course. Both grades remain on the permanent record, but only the second one is used to calculate grade-point average and credit earned. Students using the second-grade-only option for courses that are not part of their major must follow the procedure for the college that offers the course.

Since clinical skills development is impacted by course sequence and many courses are prerequisites to others, it may not be possible to repeat a course. If course sequencing will have an impact on program progression, the decision will be made by the program faculty and/or the promotions committee.

On the permanent record, the second-grade-only option appears as a pound symbol (#), showing that the first grade has been replaced by the second grade in grade-point average calculations, and that only the hours from the second registration have been counted as hours earned.

Students must request the second-grade-only option before the last day of class in order for the second grade to appear on the next grade report. The request also may be made after the close of the semester. The second-grade-only option cannot be applied to course work for which a student has already been awarded a UI degree.

### **Incomplete**

A grade of I (incomplete) may be reported if the reasons for inability to finish the course satisfactorily are acceptable to the program director and the course instructor. There also must be evidence that the course work will be finished within a reasonable length of time, usually by the end of the next academic session. Incompletes not removed by the deadline for submission of final grades for the next session result in the assignment of a grade of F. A student must work with the instructor so that an incomplete grade may be rectified by official action.

### **Reports to Students**

Instructors notify any student whose work falls below the minimum acceptable level once the problem is recognized. Grades are reported on a student's transcript, following University protocol. No formal midterm reports are given.

### **Degrees and Minors**

#### **Two Bachelor's Degrees**

Students who want to earn two bachelor's degrees, each from a different college, must communicate the request to their academic advisor, who will then contact the University's Office of Admissions. Interested students must complete the degree requirements for both majors, including the residency requirements.

#### **Second Bachelor's Degree**

Students who already hold a bachelor's degree and wish to earn an additional bachelor's degree must complete at least 30 s.h. consecutively in the Carver College of Medicine and must meet college and program degree requirements. Individuals interested in earning a second bachelor's degree must apply for admission to the degree program at the University's Office of Admissions.

#### **Minors**

Students graduating from the Carver College of Medicine may earn a minor or minors in any degree-granting department or program in the college outside of their major department or in another college of the University by meeting that department's requirements for the minor.

### **Academic Progress, Probation, Dismissal**

Students are expected to maintain satisfactory academic and professional standards and to demonstrate reasonable progress toward the Bachelor of Science. Students who fail to maintain satisfactory academic progress or professional standards of behavior as determined by their program may be placed on probation or dismissed from the program. Probation serves as a warning that students will not graduate unless their academic performance and/or professional behavior improves.

Students on probation are restored to good standing by the program director upon evidence that the problem has been corrected. Such action is usually taken at the end of a semester or session. Entering students may be admitted on probation if they fail to meet the minimum stated standards for admission.

Continued unsatisfactory scholarship or unprofessional behavior may result in dismissal from a program. Students dismissed from a program must reapply for admission through the regular, established program admissions process, following review by a faculty committee, at least four months before the requested date of readmission.

Students placed on probation or dismissed from a program are notified by email; copies are placed in their files. An academic probation notation is placed on the transcript.

Students on academic probation are restored to good standing after they successfully complete a total of 9 s.h. either in one semester or cumulatively. Their University of Iowa cumulative and semester grade-point averages must be equal to or exceed 2.00. Students on academic probation who fail to

meet the grade-point average requirement in the designated time frame for restoration to good standing are subject to dismissal.

Students are expected to attend classes regularly. Students who miss classes or examinations because of illness are expected to present evidence that they have been ill. Any other absences must be approved in advance by the course instructor.

Any offense against good order committed by a student in a classroom, clinical setting, or laboratory may be dealt with by the instructor or referred to the program director. The instructor reports in writing any disciplinary action taken against a student to the program director. Repeated or exceptional instances are reported to the dean.

## Academic Misconduct

### Plagiarism and Cheating

All cases of plagiarism and cheating in the Carver College of Medicine are reported to the dean with a statement of relevant facts. The program director and the instructor may submit recommendations for appropriate disciplinary action.

The individual instructor may reduce the student's grade, including assignment of the grade of F in the course. A report of this action is sent to the student, the program director, and the dean.

The dean, or a faculty committee appointed by the dean, may impose the following or other penalties, as the offense warrants: disciplinary probation, requirement of additional hours for the degree, suspension from the program for a period of time, or recommendation of expulsion from the program.

### Appeals Procedure

Students who want to appeal a decision should appeal in writing to the dean within two weeks after the date of receipt of the decision in writing.

## EMT Paramedic Program

### Emergency Medical Technology (EMT) Paramedic Program

**Website:** <https://uihc.org/paramedic-education-program>

This nationally accredited 1,160-hour full-time program leads to certification as a paramedic in Iowa and on the National Registry. The full-time program is conducted in three segments and consists of 15 weeks of intensive classroom training at the University of Iowa Hospitals and Clinics, five days a week. The second segment consists of 280 hours of supervised clinical experience in a hospital setting. A minimum of 360 hours of supervised paramedic field time internships with a paramedic-level ambulance service rounds out the training program. Internships are available at a number of approved sites in Iowa.

Students obtain credentials in advanced cardiac life support provider, advanced medical life support, geriatrics education for EMS, neonatal resuscitation program (NRP), pediatric advanced life support provider, pediatric education for pre-hospital professionals provider, and pre-hospital trauma life support provider.

The program is conducted twice each year, beginning in January and August.

## Goals

The goal of the Emergency Medical Services Learning Resources Center's (EMSLC) paramedic education program is to facilitate a student's development of cognitive and technical competencies to an entry-level paramedic.

Upon completion of the program, students demonstrate:

- the ability to comprehend, apply, and evaluate the clinical information relative to their role as an entry-level paramedic;
- the technical proficiency in all skills necessary to fulfill the role of an entry-level paramedic; and
- personal behaviors consistent with professional and employer expectations for an entry-level paramedic.

## Curriculum

The program adheres to the National Emergency Medical Services Educational Guidelines as defined by the National Highway Traffic Safety Administration (NHTSA) throughout the program. Students who successfully complete the program are eligible to take the National Registry paramedic examinations.

## Accreditation

The Emergency Medical Services Learning Resources Center at the University of Iowa Hospitals and Clinics is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP).

## Facilities

The Carver College of Medicine consists of twelve buildings containing 1.6 million square feet of space with one building (College of Medicine Administration Building) dedicated to administrative departments only. The other eleven buildings house research activities which include research centers, programs and institutes, as well as the Core Research Facilities which are a collection of centralized laboratories dedicated to developing and providing state-of-the-art research resources to facilitate biomedical research. They are available on a fee-for-service basis to the entire health sciences community along with outside entities.

The Medical Education Research Facility houses medical education space and research laboratories, including the Holden Comprehensive Cancer Center and the Institute for Vision Research. It also contains the college's four learning communities. The communities group students who are at different stages in their medical education, encouraging peer-to-peer learning and emphasizing leadership and community service. Each learning community features small-group rooms, study and social spaces, computer workstations, a kitchen area, and staff offices. The Medical Education Research Facility also houses the Performance-Based Assessment Program, which evaluates students' clinical and communications skills by reviewing simulated physician-patient encounters recorded in mock patient examination suites.

Students acquire clinical skills experience at the 761-bed University of Iowa Hospitals and Clinics, the Iowa City VA Health Care System, and in affiliated hospitals and ambulatory care centers throughout Iowa. University of Iowa Hospitals and Clinics serves as a tertiary care center for Iowa and portions

of adjoining states. Many patients are referred to University of Iowa Hospitals and Clinics for care and treatment not available in their home communities.

Eckstein Medical Research Building is the home of the Iowa Institute of Human Genetics Genomics Division, Viral Vector Core Facility, Flow Cytometry Facility, and the Biomedical Research Store.

The five basic science departments are housed in the Bowen Science Building and include the Departments of Anatomy and Cell Biology, Biochemistry, Microbiology and Immunology, Molecular Physiology and Biophysics, and Pharmacology.

The Medical Education Building houses research and educational space for the Department of Physical Therapy and Rehabilitation Science. It also houses research space for the Department of Psychiatry and is the home of the Office of Consultation and Research in Medical Education (OCRME). OCRME is staffed by education specialists from a range of disciplines who serve the faculty, staff, and administrators in all Carver College of Medicine programs. The office provides educational consultation, initiates and cooperates in educational research endeavors, and conducts faculty development activities.

There are teaching laboratories located in the Medical Education Building, the Bowen Science Building, and the Medical Research Facility.

Other buildings that house a wide range of College of Medicine departments, administration, and research activities are the Carver Biomedical Research Building, Westlawn, Medical Laboratories, the Medical Research Facility, the Medical Research Center, and the Multi-Tenant Facility.

The newest building, completed in 2014, is the Pappajohn Biomedical Discovery Building. The Neurosciences Institute is located on the first and second floors of the building. Third and fourth floors house the Fraternal Order of Eagles Diabetes Research Center and the Abboud Cardiovascular Research Center, on the fifth floor is the Auditory Research Group, and on the sixth floor is the Lung Biology Center. The Iowa Institute for Biomedical Imaging is on the lower basement levels housing the 7 Tesla MRI scanner (one of 20 such devices in the U.S.), 3T along with several smaller devices, and a 3-D visualization lab. All researchers in this building are chosen by the Pappajohn Biomedical Institute in which scientists from across the University collaborate to explore high-risk/high-yield scientific questions in the life sciences with the goal of advancing treatments for a wide array of human diseases.

## Interdisciplinary Programs and Centers

The college's interdisciplinary programs and centers draw strength from college faculty members and the facilities available to them, without regard to departmental units or to the distinction between graduate and postgraduate training. For more information, contact the vice dean for research.

The following centers are subdivisions of the Carver College of Medicine.

### Alzheimer's Disease Research Center

The Alzheimer's Disease Research Center studies Alzheimer's disease and related neurological conditions from the viewpoint of neuroanatomy, neuroimaging, neuropsychology, and neurochemistry. The center's purposes are to improve the diagnosis and treatment of these conditions, to disseminate

information on new research to the public, and to contribute to a better understanding of the neural basis of cognition.

### Carver Genetic Testing Laboratory

The John and Marcia Carver Nonprofit Genetic Testing Laboratory provides genetic testing for rare eye diseases, especially diseases so rare that commercial tests are unavailable for them. The laboratory's test results provide information to patients and their families while keeping the tests affordable.

### Holden Comprehensive Cancer Center

The Holden Comprehensive Cancer Center (HCCC) coordinates the efforts of University of Iowa faculty and staff in research, education, and clinical programs related to all aspects of cancer. The HCCC is recognized by the National Cancer Institute as an NCI-designated cancer center and has "comprehensive" status, a designation that recognizes the depth and breadth of interdisciplinary cancer research activity taking place at the University of Iowa.

### Iowa Mental Health Clinical Research Center

The major emphasis of the Iowa Mental Health Clinical Research Center is the study of schizophrenia. The center provides the facilities for research linking the clinical picture of the illness with its underlying neurobiology. The center's seven research units conduct the necessary integrative and interdisciplinary research to advance knowledge about the disease.

### UI Heart and Vascular Center

The UI Heart and Vascular Center coordinates research and training programs related to cardiovascular diseases. It encompasses several programs: Program Project Grant on Integrative Neurobiology of Cardiovascular Function, Program Project Grant on Cerebral Blood Vessels, Program Project Grant on Oxidative Mechanisms in Vascular Disease, Program Project Grant on Genetic and Signaling Mechanisms in the Central Regulation of Blood Pressure, Program Project Grant on Airway Physiology and Pathophysiology in a Porcine CF Model, Program Project Grant on Gene Therapy for Cystic Fibrosis Lung Disease, a Leducq Foundation Consortium grant, and a Cystic Fibrosis Foundation research and development program. It also coordinates several training programs and a program of other interdisciplinary research supported by a number of individual project grants. The center occupies two floors of cardiovascular research laboratories and administrative offices in the Medical Research Center.

## Courses

Most Carver College of Medicine courses are offered by the college's departments and programs. They are listed and described in the corresponding General Catalog sections. The college also offers the following nondepartmental courses.

## Carver College of Medicine Courses

- MED:1100 Introduction to Health Care Professions** 3 s.h.  
Introduction to current U.S. health care system and changes that are likely in the near future; information about distinct health care professions grouped by discipline (e.g., nursing, pharmacy, public health), and less traditional career pathways in health care fields; how health care professionals across disciplines coordinate to deliver better health care; instruction by prominent health care faculty at the University of Iowa; for students considering a career in the health care field.
- MED:3740 End-of-Life Care for Adults and Families** 3 s.h.  
End-of-life issues in care of adults, older adults, and their families. Same as ASP:3740, NURS:3740, PHAR:3740.
- MED:5300 Health Informatics I** 3 s.h.  
Technological tools that support health care administration, management, and decision making. Same as HMP:5370, IE:5860, IGPI:5200, SLIS:5900.
- MED:7215 Foundations of Clinical Practice IV for Physician Assistants** arr.  
Basic diagnostic considerations in each of medicine's clinical disciplines, as required of primary care providers.
- MED:8001 Medical Elective** arr.
- MED:8003 Clinical Clerkships** arr.
- MED:8005 Medical Student Research Fellowships** 0 s.h.
- MED:8006 Doris Duke Clinical Research Fellowship** 0 s.h.  
Clinical research projects under University of Iowa faculty mentorship. Requirements: leave of absence from Carver College of Medicine.
- MED:8010 Introduction to Medical Education at Iowa** 0 s.h.  
Introduction to first-year fall courses; advanced concepts in anatomy, biochemistry, cell biology, and clinical reasoning skills; for M.D. students.
- MED:8021 Community Health Outreach I** 0-1 s.h.  
Presentations and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.
- MED:8022 Community Health Outreach II** 1-2 s.h.  
Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.
- MED:8023 Community Health Outreach III** 1-2 s.h.  
Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.
- MED:8028 Introduction to U.S. Health Care System** 1 s.h.  
Structure, function, and finance of U.S. health care system; access, cost, quality, finance mechanisms, reform process.
- MED:8040 Teaching of Physical Exam Skills** 1-2 s.h.  
Components of complete physical exam and educational techniques for teaching such skills: teaching of physical exam components to first-year students. Requirements: fourth-year M.D. enrollment.
- MED:8041 Facilitation of Patient-Centered Learning** 1-2 s.h.  
Experience in facilitating patient-centered learning groups; case discussion, critique of student presentations and assignments, clinical insight, evaluation of student performances.
- MED:8070 The Examined Life: Writing and Medicine** 1 s.h.  
Literature, essays, poetry; discussion of participants' writing; students prepare portfolios of their own writing.
- MED:8071 Career Life Planning** 1 s.h.  
Students' individual interests, values, and decision-making processes important in selecting a specialty, engaging in the match process, and integrating oneself into the medical profession; personal career development, culture and climate in which physicians work and learn.
- MED:8072 Evidence-Based Medicine for Clinical Medicine** 1 s.h.  
Evaluation of literature and development of critical thinking skills necessary for evidence-based medical practice.
- MED:8073 Biomedical Innovation** 1 s.h.  
Introduction to all phases of medical device/technology development; development of knowledge of entire medical innovation process through didactic sessions, faculty, interactions, and interdisciplinary collaboration; interdisciplinary approach; research and development of a novel medical device, therapy, or model of care. Requirements: M.D. enrollment.
- MED:8074 Research Skills Seminar** 1 s.h.  
Seminar series designed to bridge gap from undergraduate and medical student experiences to research during residency and beyond; topics include identification of projects and mentors, leadership, collaboration, translation, evidence-based medicine, project development, statistical analysis, presentation, publication, and career progression.
- MED:8076 Bioethics and Humanities Seminar** 1 s.h.  
Broad range of topics in bioethics and medical humanities, including philosophical principles, clinical ethics, research ethics, medical professionalism, narrative ethics, and historical and cultural aspects of medicine. Requirements: enrollment in Carver College of Medicine Humanities Distinction Track.
- MED:8077 Personal-Professional Compass** 1 s.h.  
Provides help for medical students to understand, articulate, and integrate personal and professional values and goals while making their way through medical school; promote student growth as humanistic professionals through written reflections on personal experience, readings from medicine and the humanities, and discussions with peers and mentors; preparation to write an authentic and compelling personal statement for residency applications. Requirements: M.D. enrollment.

- MED:8081 Global Health Issues I** 1 s.h.  
Core issues in the current field of global health, including history of global health, health and development, social determinants of health, measuring health and disease, disparities in the American health care system, poverty and health, gender issues and reproductive health, child health, immigrant and migrant health issues, and introduction of major players in global health. Requirements: M.D. enrollment.
- MED:8082 Global Health Issues II** 1 s.h.  
Core issues in the current field of global health, including health care as a human right, why the Third World is the Third World, communicable disease issues, outbreaks and pandemics, noncommunicable issues, malnutrition and obesity, cultural context of health care, violence as a health issue, and emergency response and transition to development. Prerequisites: MED:8081. Requirements: M.D. enrollment.
- MED:8083 Global Cross-Cultural Elective** arr.  
Cross-cultural medical program with focus on health care problems of a domestic or international community; individually arranged.
- MED:8084 Global Health Seminar** 1 s.h.  
Presentations by faculty members, University special guests, and alumni on their current work in global medicine/global health; implementation of global health concepts. Requirements: M.D. enrollment.
- MED:8112 Human Organ Systems** 8 s.h.  
Microscopic structure and function of major and specialized human organ systems; approach integrating normal microscopic anatomy and human physiology. Requirements: M.D. enrollment.
- MED:8121 Clinical and Professional Skills I** 3 s.h.  
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 context of patient care through the Early Clinical Experiences (ECE) program; interaction with students from other health sciences colleges to explore the interprofessional approach to caring for patients. Requirements: M.D. enrollment.
- MED:8122 Medicine and Society I** 3 s.h.  
Delivery of individual disease prevention/health promotion services; introduction to social determinants of health; influence and impact of culture and community on health care; community resources; application of health and risk assessment to individual patients and self. Requirements: M.D. enrollment.
- MED:8123 Foundations of Cellular Life** 5 s.h.  
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 human body; necessary framework to explore six mechanisms of health and disease. Requirements: M.D. enrollment.
- MED:8124 Mechanisms of Health and Disease I** 8 s.h.  
Normal and healthy processes within and among mechanisms of oxygenation, metabolism, and genetics/development; first in a series on multisystem mechanisms of health and disease. Requirements: M.D. enrollment.
- MED:8131 Clinical and Professional Skills II** 4 s.h.  
Interpersonal skills, lifelong learning, interviewing skills, physical examination skills, ethical issues in patient care, and basic approach to patients in terms of prevention, treatment, and follow-up care. Second in a sequence during preclinical semesters of medical school and continuing as an integrated strand throughout curriculum. Requirements: M.D. enrollment.
- MED:8132 Medicine and Society II** 4 s.h.  
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. Second in a sequence during preclinical semesters of medical school and continuing as an integrated strand throughout curriculum. Requirements: M.D. enrollment.
- MED:8133 Mechanisms of Health and Disease II** 7 s.h.  
Normal and healthy processes within and among mechanisms of Immunology/Inflammation, locomotion/integument, and neuropsychiatry; second in a series on mechanisms of health and disease. Requirements: M.D. enrollment.
- MED:8134 Mechanisms of Health and Disease III** 11 s.h.  
Abnormalities or disruptions leading to disease within and among mechanisms of oxygenation, metabolism, and genetics/development; third in a series on multisystem mechanisms of health and disease. Requirements: M.D. enrollment.
- MED:8199 First-Year Special Study** arr.  
First-year special study. Requirements: M.D. enrollment.
- MED:8213 Healthcare Ethics, Law, and Policy** 2 s.h.  
Ethical and legal aspects of health care delivery.
- MED:8215 Foundations of Clinical Practice IV ICD** arr.  
Basic diagnostic considerations in each of medicine's clinical disciplines, as required of primary care providers. Prerequisites: MED:8115 and MED:8205. Requirements: second-year M.D. enrollment.
- MED:8221 Clinical and Professional Skills III** 4 s.h.  
Advanced clinical reasoning skills through focused patient encounters and interactions with special patient populations; emphasis on integration and use of concepts for cost conscious, patient-centered, interdisciplinary care. Requirements: M.D. enrollment.
- MED:8222 Medicine and Society III** 4 s.h.  
Health services organization and delivery; emphasis on community dimensions of medical practice and patient safety. Requirements: M.D. enrollment.
- MED:8223 Mechanisms of Health and Disease IV** 10 s.h.  
Abnormalities or disruptions leading to disease within and among mechanisms of immunology/inflammation, locomotion/integument, and neuropsychiatry; fourth in a series on multisystem mechanisms of health and disease. Requirements: M.D. enrollment.
- MED:8224 Mechanisms of Health and Disease Keystone** 7 s.h.  
Transition between classroom instruction in mechanisms of health and disease and clinical practice; foundational information from mechanisms of health and disease sequence approached from perspective of what is commonly encountered in clinics; application of information to making diagnostic and management decisions of common important clinical problems. Requirements: M.D. enrollment.



- MED:8299 Second-Year Special Study** arr. Second-year special study. Requirements: M.D. enrollment.
- MED:8300 Clinical Beginnings** 1 s.h. Orientation to third-year clerkships; technical skills, simulated patient activities, competence with the physical exam.
- MED:8301 Community-Based Primary Care** arr. Introduction; clinical activities, work with community agencies and resources, didactic and conferences. Requirements: M.D. enrollment.
- MED:8320 Transition to Clerkships** 1-2 s.h. Two weeks of skills training prior to start of core clinical clerkships. Requirements: M.D. or M.P.A.S. enrollment.
- MED:8401 Medicine, Literature, and Writing** arr. Insights, freedom, joy, responsibilities, and challenges of a life in medicine; reading, discussion, individual creative writing.
- MED:8403 Teaching Skills for Medical Students** 4 s.h. Practical teaching techniques; opportunity for students to develop teaching skills before they become medical residents.
- MED:8404 Advanced Teaching Skills for Medical Students** 2 s.h. Opportunity to expand knowledge and experience in medical education; investigation of medical education in students' specialty of interest through literature research and interaction with faculty; primary focus is to design and successfully complete a faculty approved project. Prerequisites: MED:8403. Requirements: fourth-year M.D. enrollment.
- MED:8405 Leadership for Future Physicians** 2 s.h. Formal training in multiple aspects of leadership; offers future leaders in health science specialties an earlier opportunity to consider leadership abilities and perspectives; for fourth-year medical, physician assistant, nursing, pharmacy, public health, and dental students. Requirements: health science enrollment.
- MED:8410 Quality Improvement and Patient Safety** 2 s.h. Students work with faculty and staff involved in quality improvement and patient safety (QI/PS) at University of Iowa Hospitals and Clinics (UIHC); readings, didactic sessions, and hands-on activities to advance knowledge and practice of QI/PS in health care; activities include review of ongoing QI/PS projects at UIHC, application of QI/PS methodologies to project development and analysis, individual and team-based simulations, interdisciplinary collaboration and communication, participating in conferences related to QI/PS, and reflecting on these experiences with peers. Same as NURS:3728.
- MED:8480 Global Cross-Cultural Clerkship** arr. Cross-cultural medical program at an international site; focus on health care problems of a specific community; individual educational objectives set in advance.
- MED:8499 Individually Arranged Medicine Elective** arr. Individually arranged elective through the Office of Student Affairs and Curriculum.
- MED:9701 Instructional Design and Technology** 3 s.h. Skills and techniques necessary for analysis, design, development, implementation, and evaluation of effective instruction.
- MED:9702 Clinical Teaching in Medical Education** 3 s.h. Principles and methods for teaching individuals and small groups in outpatient and inpatient settings. Prerequisites: MED:9701 or PSQF:6205. Recommendations: educational psychology course.
- MED:9703 Educational Research and Evaluation** 3 s.h. Research design and program evaluation; approaches relevant to medical education.
- MED:9711 Teaching Methods in Medical Education** 3 s.h. Principles and methods for teaching in large and small classrooms. Recommendations: educational psychology course.
- MED:9712 Introduction to Educational Measurement in Medical Education** 3 s.h. Classical test theory; overview of medical education assessment methods; practical information for designing and critiquing assessments.
- MED:9713 Assessment in Medical Education** 3 s.h. Medical education assessment methods; research methods and literature that support current practices; research project. Prerequisites: MED:9712.
- MED:9714 Current Issues in Medical Education** 3 s.h. Selected issues, policies, and research.
- MED:9720 Portfolio Project** 3 s.h. Production of individual student portfolios used to integrate knowledge across courses; capstone activity.
- MED:9721 Study in Faculty Development** 3 s.h. Academic credit for approved project or other assigned activities for students in the Teaching Scholars program.
- MED:9722 Independent Study** arr.
- MED:9724 Leadership in Medicine** 3 s.h. Introduction to basic leadership and management theories pertaining to a health care setting; focus on the history of leadership development, various components of leadership, and how these components can be used to be a successful leader/administrator. Requirements: Master in Medical Education degree program enrollment
- MED:9725 Simulation in Medical Education** 3 s.h. Appropriate use of various types of simulation in medical education; how to design, deliver, and debrief a simulation activity; literature supporting use of simulation in medical education. Requirements: Master in Medical Education degree program enrollment.
- MED:9726 Curriculum Development in Medical Education** 3 s.h. Curriculum development using knowledge and experience gained from MED:9701, MED:9702, and MED:9711; identification of an area/topic for creation of curriculum; conduction of a needs assessment to identify topics and/or components of curriculum; creation of plan with curriculum goals, learning objectives, methods for evaluation; development of preliminary planning and aspects of implementation and evaluation phases of the model.
- MED:9727 Teaching and Assessing Communication Skills in Medical Education** 3 s.h. Explores broad issues related to both teaching and assessing clinician-patient communication skills in medical education; review literature on best practices in clinician-patient communication and on teaching and/or assessing skills among medical learners; explore observation and feedback as key technique in addressing communication skills through observation of peers and learners; video recording of interactions with patients.

## Hospital Certificate Programs of Study

The following courses are conducted by University of Iowa Hospitals and Clinics staff.

### EMT-Paramedic Program Courses

**EMTP:3101 Emergency Medical Technician - Paramedic I 0 s.h.**

Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Requirements: certification as an emergency medical technician-basic.

**EMTP:3102 Emergency Medical Technician - Paramedic II 0 s.h.**

Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Prerequisites: EMTP:0101.

**EMTP:3103 Emergency Medical Technician - Paramedic III 0 s.h.**

Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Prerequisites: EMTP:0102.

### Orthoptics Teaching Program Course

**OTP:4902 Orthoptics Program 0 s.h.**

Clinical science of binocular vision, ocular motility, and related eye disorders; practical, theoretical training in the Department of Ophthalmology and Visual Sciences two-year program; written, oral and practical national board examinations required at completion. Requirements: bachelor's degree with specific class recommendations.