

Medical School Requirements (Updated for Entering class of 2016)

Albany Medical College

Link to website: http://www.amc.edu/academic/Undergraduate_Admissions

Requirements:

- Successful completion of one year of each of the following with related laboratory experience:
 - General biology or zoology
 - General chemistry
 - Organic chemistry
 - Physics
- Albany Medical College reserves the right to change entrance requirements at the beginning of any academic year without formal published notice.

Albert Einstein College of Medicine – Yeshiva University

Link to website: <http://www.einstein.yu.edu/education/md-program/admissions/application-procedure/course-requirements.aspx>

Requirements:

Knowledge

In recognition of the importance of intellectual multiplicity in the medical profession, applicants are encouraged to major in any area of the humanities or sciences that is of interest to them. Regardless of an applicant's chosen major, in preparation for studies in human physiology, pharmacology and the biological basis of disease, applicants applying to medical school should obtain a solid foundation in the biological, chemical and physical sciences. Premedical coursework should include laboratory-based courses in which applicants learn to collect data, analyze it and draw scientifically rigorous conclusions.

1. Chemistry/Biochemistry

An understanding of inorganic and organic chemistry is essential to understanding the biochemistry of living organisms.

Applicants should have a working knowledge of:

- A. atomic and molecular structure, chemical reactions, catalysis, chemical equilibrium, thermodynamics, reaction rates, binding constants and reaction mechanisms with a focus on redox reactions, acid-base chemistry, enzyme catalysis and biological chemistry;
- B. the structure and function of biologically important molecules including DNA, RNA, proteins, lipids and carbohydrates and the pathways for synthesis, modification and degradation of these macromolecules.

2. Biology

Applicants should understand the molecular and cellular organization of prokaryotic and eukaryotic organisms and viruses.

This includes understanding the:

- A. structure and function of cells and subcellular organelles;
- B. major biological processes and the regulation of these processes including life cycle, metabolism, bioenergetics, and replication;
- C. cellular basis for organ function and how organs contribute to the viability of living organisms.

3. Physics

Physics provides a fundamental foundation for understanding chemistry, biology and physiology. Applicants should have knowledge of Newtonian mechanics, work and energy, fluid dynamics, electricity and magnetism, circuit diagrams, and waves.

4. Mathematics

Applicants should have a firm foundation, i.e., college level course exposure to quantitative reasoning and the mathematical analysis and interpretation of data. They should be able to:

- A. construct and interpret functions and graphs;
- B. understand the use of basic statistics and probability in testing hypotheses and validating experimental results, particularly as it relates to the critical reading of medical and scientific literature.

While not part of the required competencies, computer science and programming, and knowledge of the concepts of limits, integration and differentiation may be useful skills, depending on an applicant's interests and career goals, especially for those applicants interested in a career in research and/or academic medicine.

5. Humanities, Social and Behavioral Sciences

While applicants are not expected to achieve expertise in all disciplines, it is important that they understand the factors that influence individual, community and societal decisions regarding health and health care. This awareness can be gained through courses in disciplines such as psychology, sociology, anthropology, public health, literature, economics, history, philosophy and ethics. Applicants should have a basic understanding of key issues in medical ethics.

Where to Meet the Knowledge Competencies

- Whereas course work at a four-year college or university is our benchmark, if a student chooses to meet a competency component via an alternate route such as through laboratory experience, through an advanced placement course, a course taken at a community college, a course taken abroad (during a semester abroad for which the undergraduate U.S. degree-granting institution gives credit, or for which AMCAS will verify and report the grade), or an online course, he or she should either seek guidance from an academic advisor to ensure that the option meets the above guidelines as well as the rigorous academic standard required by the Albert Einstein College of Medicine. Flexibility is not license to pursue a non-rigorous course of study. The Knowledge competencies can be met also by following the traditional courses that are acceptable to most medical schools.

Baylor College of Medicine

Link to website: <https://www.bcm.edu/education/schools/medical-school/admissions/requirements>

Requirements:

- One year, including labs:
 - Chemistry (General)
 - Chemistry (Organic)
 - Biology
- One year:
 - English

Boston University School of Medicine

Link to website: <http://www.bumc.bu.edu/admissions/>

Requirements:

- English Composition or Literature (1 year)
- Humanities (1 year)
- Biology with Lab (1 year)
- Physics (1 year)
- Chemistry Sequences: Applicants may meet our chemistry requirement in any of the following ways, as long as the sequence chosen meets the chemistry requirements of the undergraduate institution:

	General Chemistry with Lab	Organic Chemistry with Lab	Biochemistry
Option 1	2 Semesters	2 Semesters	1 Semester (recommended)
Option 2	2 Semesters	1 Semester	1 Semester
Option 3	1 Semester	2 Semesters	1 Semester

Please note: The wording of these requirements vis-à-vis labs is confusing. The 3 credit labs you complete at Columbia are more than sufficient for BU's lab requirements.

Brown University

Link to website: <http://brown.edu/academics/medical/admission/admission-requirements-and-criteria>

Requirements:

- Biology, 2 courses (lab experience recommended)
- Chemistry, 2 courses Inorganic chemistry, 1 course of Organic
- Physical Sciences, 2 course sequence of topics in mechanics, heat, electricity, optics and radiation physics
- Quantitative Reasoning, 1 course in Calculus (or comparable course)
- Social and Behavioral Sciences, 2 courses in the study of human behavior, preferably in anthropology, sociology, psychology, economics, or political science

Recommended:

- Chemistry, 1 course in Biochemistry
- Physical Sciences, 1 course in Genetics
- Quantitative Reasoning, 1 humanities course
- English, 1 course in college English

Case Western Reserve University School of Medicine

Link to website: <http://casemed.case.edu/admissions/>

University Track & CCLCM Track:

REQUIRED COURSEWORK: These are the minimum number of courses we expect you to have completed at the time of matriculation, not necessarily at the time of application. That said, it is to your advantage to have as many of the required courses as possible completed in preparation for the MCAT and to strengthen your application to medical school. Community college credits in these courses are evaluated on a case-by-case basis.

- General/Inorganic chemistry: 2 semesters/3quarters with 2 semesters of lab [NOTE: Columbia's 3 credit/1 semester labs suffice]. AP/IB credit accepted.
- Organic chemistry: 1 semester with 1 semester of lab. AP/IB not accepted.
- Biochemistry (must include metabolism): 1 semester course, lab not required.
- Writing/college English: 1 semester. This can also be fulfilled with other expository writing courses in the humanities. Science courses with extensive writing components can also fulfill this requirement. AP/IB credit not accepted.

RECOMMENDED COURSEWORK: These are courses or areas of study that we strongly encourage you to consider in preparation for the MCAT and more importantly, in preparation for medical school. While formal coursework in these areas is the most frequent method of learning the content material, it may also be accomplished in other ways, with the most common being through research experiences.

- Cellular Biology
- Physics
- Biostatistics
- Social and Behavioral Sciences (Psychology, Anthropology, Sociology, etc.)
- Research Experience:
 - University Track* (4 yr. MD): Research experience is not required. However, a successful applicant must be able to demonstrate an interest in participating in a future research project as a medical student.
 - CCLCM Track* (5 yr. MD): More than one summer of hypothesis-driven research experience in a medical or non-medical field is a requirement for the CCLCM track since the CCLCM curriculum program is designed to train physician investigators.

Medical Scientist Training Program:

REQUIRED COURSEWORK: These are the minimum amount of courses we expect you to have completed at the time of matriculation, not necessarily at the time of application. That said, it is to your advantage to have as many of the required courses completed in preparation for the MCAT and to strengthen your application to medical school. Community college credits in these courses are evaluated on a case-by-case basis.

- Inorganic chemistry: 2 semesters/3 quarters with 2 semesters of lab [NOTE: Columbia's 3 credit/1 semester labs suffice]. AP/IB credit accepted.
- Organic chemistry: 1 semester with 1 semester of lab. AP/IB not accepted.

- Biochemistry (must include metabolism): 1 semester course, lab not required.
- Physics: 2 semesters/3 quarters with 2 semesters of laboratory. AP/IB credit accepted.
- Advanced Biology or Biology Subfield: 1 semester, lab not required. AP/IB credit not accepted.
- Calculus or Statistics: 2 semesters/3 quarters. AP/IB credit accepted.
- Writing/College English: 1 semester. This can also be fulfilled with other expository writing courses in the humanities. Science courses with extensive writing components can also fulfill this requirement. AP/IB credit not accepted.
- Research Experience: Substantive research experience during the summers and during the school year as an undergraduate, or during post-baccalaureate research time is required. Applicants must also seriously consider and explain why they want to pursue both the MD and the PhD degrees.

RECOMMENDED COURSEWORK: These are courses or areas of study that we strongly encourage you to consider in preparation for the MCAT and, more importantly, in preparation for medical school. While formal coursework in these areas is the most frequent method of learning the content material, it may also be accomplished in other ways, with the most common being through research experiences.

- Social and Behavioral Sciences (Psychology, Anthropology, Sociology, etc.)

Central Michigan University School of Medicine

Link to website: <https://www.cmich.edu/colleges/cmed/students/Pages/Admissions%20Requirements.aspx>

Requirements:

- Two (2) semesters of Biological Science (Anatomy, Biology, Genetics, Physiology, Microbiology, etc.) with labs
- Two (2) semesters of Organic Chemistry (at least one lab) OR one semester (1) Organic Chemistry and one semester (1) Biochemistry (at least one lab)

Recommended for preparation for the College of Medicine curriculum and/or the MCAT include:

- Inorganic Chemistry
- Biochemistry
- Physics
- Behavioral Sciences (psychology, sociology, anthropology)
- Medical Humanities
- Communications
- Ethics
- Biostatistics

Columbia University College of Physicians and Surgeons

Link to website: <http://ps.columbia.edu/education/admissions>

Requirements:

- At least three full academic years at an accredited college in the U.S. or Canada.
 - One year of English
 - One year of Biology with labs
 - One year of Physics with labs
 - Two years of Chemistry, one of which must be Organic Chemistry, both with labs

The Commonwealth University Medical College

Link to website: <http://www.thecommonwealthmedical.com/Admissions>

Requirements:

- General Biology with laboratory (1 year/2 semesters)
- General Inorganic Chemistry with laboratory (1 year/2 semesters)
- Organic Chemistry with laboratory (1 year/2 semesters)
- General Physics with laboratory (1 year/2 semesters)
- English and English Composition (1 semester)

Cooper Medical School – Rowan University

Link to website: <http://www.rowan.edu/coopermed/students/admissions/prerequisites.php>

Requirements:

- Biology (any 2 courses with lab) 2 semesters/8 credits
- Chemistry (any 2 courses with lab) 2 semesters/8 credits
- English/Composition 1 semester/3 credits

Recommended courses:

- Physics (with lab) 2 semesters/8 credits
- Behavioral Science 1 semester/3 credits
- Ethics 1 semester/3 credits
- Biostatistics 1 semester/3 credits
- Humanities 2 semesters/6 credits
- Biochemistry 1 semester/3 credits
- Spanish 2 semesters/6 credits

Creighton University School of Medicine

Link to website: <http://medschool.creighton.edu/medicine/oma/index.php>

Fall 2016 Required Courses:

- Biochemistry
- Human/Animal Physiology at the advanced level
- Statistics*
- English: two courses that emphasize writing

*The statistics requirement may be fulfilled either by completing a specific statistics course, or by completing a non-statistics course that includes coursework that provides the applicant with foundational statistical concepts.

Preference for Admission will be given to applicants who complete at least one advanced science course, in addition to the required coursework, that builds a foundation within human or molecular-cellular biology.

Dartmouth University – Geisel School of Medicine

Link to website: <http://geiselmed.dartmouth.edu/admissions/admissions-requirements/>

Requirements:

- One year (8 semester hours or equivalent) of general biology and general physics.
- Two years (16 semester hours or equivalent) of chemistry, which must include one semester (or equivalent) of organic chemistry and one semester (or equivalent) of biochemistry.
- One half-year (3 semester hours or equivalent) of college-level mathematics, including either calculus or statistics
- Facility in written and spoken English.
- Three years of post-secondary study at US and/or Canadian colleges or universities with a broad range of study that introduces students to the sciences and humanities, preparing students to understand both the scientific basis of medicine and human behavior and society.
- Students are encouraged to major in a field of particular interest and, if possible, to pursue independent investigations in that field.

Drexel University College of Medicine

Link to website: <http://www.drexelmed.edu/Home/Admissions/MDProgram.aspx>

Scientific Competencies

Apply quantitative reasoning and appropriate mathematics to

Scientific Competencies
describe or explain phenomena in the natural world
Demonstrate understanding of the process of scientific inquiry, and explain how scientific knowledge is discovered and validated
Demonstrate knowledge of basic physical principles and their applications to the understanding of living systems
Demonstrate knowledge of basic principles of chemistry and some of their applications to the understanding of living systems
Demonstrate knowledge of how biomolecules contribute to the structure and function of cells
Apply understanding of how molecular and cell assemblies, organs, and organisms develop structure and carry out function
Explain how organisms sense and control their internal environment and how they respond to external change
Demonstrate an understanding of how the organizing principle of evolution by natural selection explains the diversity of life on earth

Drexel's coursework competencies:

- Biology – with an emphasis on the cellular and molecular aspects of living organisms. This competency may be met with one year of college biology.
- Chemistry – with an emphasis on an integrated sequence that leads to the mastery of biologically relevant general chemistry, organic chemistry, and biochemistry. This competency may be met with two years of chemistry through the level of college biochemistry. Many possible course selections may be used for this recommendation.
- Physics – with an emphasis on the principles of mechanisms, kinetics, thermodynamics, wave motion, electricity and magnetism. This competency may be met with a course in college physics.
- Laboratory experience – with a focus on hypothesis-driven exercises, problem solving, and basic laboratory principles. One year of a lab experience in biology, chemistry, or physics is a way to demonstrate proficiency in this competency. Additional laboratory and research experiences are valued.
- Statistics and probability – with emphasis on hypothesis testing, quantitative scientific reasoning analysis, and biostatistics. A course in biostatistics is one way to demonstrate proficiency in this competency. Knowledge of statistics is important for understanding the literature of science and medicine.
- English literature/communication/intensive writing experience – a successful applicant must be competent to write, speak, and read the English language fluently. Proficiency in other languages is valued.
- Behavioral and social sciences – a medical career requires an appreciation that social, cultural, and behavioral issues influence individuals and communities regarding their understanding of health and illness. Applicants may explore factors that contribute to health care policy and delivery. These issues may be addressed through course work in history, sociology, psychology, philosophy, anthropology, ethics, and economics.

Duke University School of Medicine

Link to website: http://dukemed.duke.edu/modules/ooa_applicant/index.php?id=21

- Biochemistry: May be fulfilled by a single course in Biochemistry, or through coursework which incorporates principles of Biochemistry as part of an interdisciplinary course in Cell and/or Molecular Biology and/or Genetics.
- Cellular Biology: May be fulfilled by a single course in Cell and/or Molecular Biology and/or Genetics.
- Statistics/Biostatistics: An understanding of the application of statistical methods in the analysis of data.
- Physics: An understanding of the correlation of basic physics to human physiology and anatomy (e.g. physics and/or biophysics).
- Sociology: An introduction to the principles of social organization, with particular emphasis on the social determinants of healthcare.

- Psychology: An introduction to the basic principles of psychology with emphasis on the biological basis of behavior.
- Expository Writing: Experience in expository writing across the humanities, including but not limited to formal courses in English, is a fundamental expectation in the preparation for medicine. This may be accomplished through coursework in a number of disciplines, including but not limited to Philosophy, History, Public Policy, Political Science, Religion, etc. and may be accomplished through an Honors Thesis or completion of a major research paper.

Understanding that the preliminary coursework leading up to the aforementioned cross-disciplinary courses, e.g. Biochemistry, Cell/Molecular Biology, etc., will vary among colleges and universities, the academic expectations as listed represent the absolute courses expected of matriculants to the School of Medicine. The preliminary courses may be acquired through traditional university courses and/or approved online course work. Applicants considering the use of online coursework should contact the Office of Admissions at Duke University if there are any questions about the suitability of online coursework for DukeMed.

East Carolina University

Link to website: <http://www.ecu.edu/bsomadmissions>

Requirements:

- General Biology or Zoology with laboratory (Botany alone is not sufficient to meet this requirement)
- General Chemistry with laboratory (which must include both qualitative and quantitative analysis)
- Organic Chemistry with laboratory
- Physics with laboratory, and
- English (or writing intensive courses)

Recommendations:

- While not required, courses in genetics, biostatistics, biochemistry, humanities, social science, and an additional year of English are strongly recommended.

East Tennessee State University Quillen College of Medicine

Link to website: <http://www.etsu.edu/com/sa/admissions/requirements/academicreq.aspx>

- Quillen no longer requires the completion of any specific courses at the undergraduate level.

Applicants are encouraged to pursue their own intellectual interests in completing a broadly based undergraduate education demonstrating scholastic rigor, analytic and critical thinking, an aptitude for understanding complex systems in human biology, and the ability to apply knowledge.

Quillen welcomes applications from excellent students regardless of major or course of study. However, completion of a minimum of 90 semester hours of coursework from a regionally accredited college or university is required to be eligible for admission. Additionally, all applicants are required to submit scores from the Medical College Admissions Test (MCAT). MCAT scores from any administration within the previous two calendar years are acceptable. Undergraduate GPA, strength of curriculum and scores on the MCAT will continue to be evaluated as important indicators of probable academic success. Competitive performance on the MCAT requires adequate preparation in the behavioral and social sciences, general biology, general and organic chemistry, biochemistry, algebraic and trigonometric quantitative skills, and physical science. Appropriate preparation is strongly advised and will be evaluated in the selection process. The ability to read and comprehend information at a rapid pace is of great value.

Applicants should demonstrate scientific curiosity and enthusiasm for life-long learning. The continuum of scientific discovery that impacts diagnostic and therapeutic practice requires that applicants have an adequate preparation in the pre-clinical sciences, particularly in biochemistry, bio-molecular mechanisms and genetics. In addition, the Admissions Committee looks for a broad educational foundation in the behavioral and social sciences, humanities, literature and the fine arts.

East Virginia Medical School

Link to website: http://www.evms.edu/education/doctoral_programs/doctor_of_medicine/admissions_criteria/

Requirements:

- Biology (with lab) 1 year
- General chemistry (with lab) 1 year
- Organic chemistry (with lab) 1 year
- Physics (with lab) 1 year

Biochemistry may only be substituted for Organic Chemistry.

Emory University School of Medicine

Link to website: http://med.emory.edu/main/education/admissions/md/how_to_apply/application_requirements.html

Minimum course requirements:

- 8 semester hours (with lab) in biology
- 8 semester hours (with lab) in general or inorganic chemistry
- 8 semester hours (with lab) in organic chemistry
- 8 semester hours (with lab) in one of the physical sciences
- 6 semester hours of English
- 18 semester hours of humanities and social and/or behavioral sciences

Florida Atlantic University

Link to website: <http://med.fau.edu/admissions/index.php>

Requirements:

- English, 2 semesters
- Inorganic Chemistry plus lab, 2 semesters
- Organic Chemistry plus lab, 2 semesters
 - 1 semester of Biochemistry may be substituted for the second semester of Organic Chemistry
- Physics plus lab, 2 semesters
- Biology/Zoology plus lab, 2 semesters
- Mathematics, 2 semesters
- Additional Science, 2 semesters
 - Biochemistry is strongly recommended
 - May be fulfilled with courses in the Natural Sciences, Mathematics, or Social Sciences

Florida International University

Link to website: <http://medicine.fiu.edu/admissions/md/index.html>

Requirements:

- General Biology with laboratory: 2 semesters
- General Chemistry with laboratory: 2 semesters
- Organic Chemistry with laboratory: 2 semesters
- Physics with laboratory: 2 semesters
- Mathematics: 2 semesters of College Mathematics
- College English: 2 semesters
- Demonstrated proficiency in spoken and written English

Recommended:

Statistics, Biochemistry, Cell Biology, Foreign Languages, Genetics, Humanities, Immunology, Microbiology, Physiology, Social Sciences

Florida State University

Link to website: <http://med.fsu.edu/?page=mdAdmissions.home>

Requirements:

- College English, 6 credits

- College Mathematics, 6 credits
- Biology, with lab, 8 credits
- Organic Chemistry, with lab, 4 credits
- Physics, with lab, 8 credits
- Biochemistry, 3 credits
 - Must complete a Biochemistry that has at least one organic chemistry course as a prerequisite
 - 1 credit of Biochemistry lab is preferred but not required

Recommended:

- Sociology, 3 credits
- Psychology, 3 credits
- Genetics, 3 credits
- Spanish, 6 credits

George Washington University

Link to website: <http://smhs.gwumc.edu/mdprograms/admissions/>

Requirements:

- 6 credits of English
- 6 credits of lecture and 2 credits of lab in each of the following sciences:
 - Biology (not Botany or Ecology courses)
 - General Chemistry
 - Organic Chemistry (Biochemistry can be substituted for second semester)
 - Physics

Georgetown University School of Medicine

Link to website: <http://som.georgetown.edu/prospectivestudents/degrees/md/>

Requirements:

- Biology: 1 year with lab (8 semester hours)
- Inorganic Chemistry: 1 year with lab (8 semester hours)
- Organic Chemistry: 1 year with lab (8 semester hours). Biochemistry (without lab) is strongly recommended by the Committee and may replace a second semester of organic chemistry.
- Physics: 1 year with lab (8 semester hours)
- Mathematics (college-level): 1 semester. Calculus is not required; Statistics is acceptable.

Courses in microbiology, computer science, cellular physiology, genetics, embryology, biostatistics, quantitative analysis, physical chemistry, humanities, and social and behavioral sciences - while not required - are useful in providing some of the essential skills and knowledge required for a medical education.

Georgia Health Sciences University

Link to website: <http://www.gru.edu/mcg/admissions/application/prerequisites.php>

Requirements:

- Biology
 - One academic year of general biology or zoology with lab
- Chemistry
 - One academic year of general/inorganic chemistry with lab
 - One academic year of advanced chemistry, one semester of which must be organic chemistry with lab. The other semester may be fulfilled by any advanced chemistry course (lab not necessary).
 - Biochemistry is strongly recommended.
- Physics
 - One academic year of physics with lab
- English
 - One academic year of English or whatever portion in the academic year is required for the baccalaureate degree in an accredited college or university.

Recommended:

Cellular Biology, Statistics, Social Sciences, Humanities, Psychology, Behavior Sciences

Harvard Medical School

Link to website: <http://hms.harvard.edu/content/admissions>

Course Requirements (The following requirements will become mandatory for students applying to enter in 2016 and beyond):

The requirements for medical school have remained basically unchanged for many decades, despite the obvious change in medical knowledge (e.g., about disease mechanisms and our understanding of drug actions), the pace of new discovery, and the permeation of biochemistry, cell biology, and genetics into most areas of medicine. Therefore, adequacy of preparation in the preclinical sciences requires acquisition of more information than in the past. At present, pathophysiology and pharmacology require detailed knowledge of molecular targets and biochemical mechanisms, and modern cell biology has become the language of medical disciplines such as pathology, oncology, cardiology, and neurology.

Interdisciplinary courses that break down the barriers among, demonstrate complementary concepts of, and highlight collective wisdom in, biology, chemistry, physics, and mathematics are encouraged. In short, a focus on integration of principles over several courses should be emphasized.

Requirements for entering class 2016 and beyond:

○ 1. Biology

The required 1-year biology course should be devoted to genetics and cell biology and should emphasize human biology (signal transduction, basic pharmacologic principles, homeostasis and feedback, an introduction to hormone receptors, neuronal signaling, and immunology). Because biology is the most elegant expression of chemistry, physics, and mathematics, computational skills that tie these previously separate disciplines together should be emphasized.

The focus on genetics should include nucleic acid structure and function, genetic recombination, and mechanisms of gene expression in eukaryotic and prokaryotic cells, i.e., molecular biology/genetics); the study of cell biology should include subcellular organization, differentiation, cellular metabolic function, energy transfer, structure-function relationships, reproduction, and membrane properties. Preparation in biology should place more of an emphasis on human biology and on principles of systems biology.

Although a formal year-long course that covers these concepts will meet this requirement, other innovative approaches (including interdisciplinary courses taught together with biologically relevant physical sciences) that allow students to master these “competencies,” independent of discrete courses and semester time commitments, are encouraged and will be considered. Advanced placement credits cannot be used to satisfy this requirement; upper level courses should be taken if students have been granted advanced placement credits.

○ 2. Chemistry

Students should be exposed to general chemistry, organic chemistry, and biochemistry in a 2-year sequence that provides the foundation for the study of biologically relevant chemistry. Organic chemistry preparation should be woven seamlessly with basic principles of biochemistry (especially protein structure and function).

Without an increase in the two-year requirement in chemistry, the premedical chemistry curriculum should focus on more biologically relevant areas of general and organic chemistry. General chemistry preparation should include foundational topics in physical and inorganic chemistry such as bonding, molecular structure, chemical reactivity, equilibrium, energetics, and thermodynamics. Organic chemistry preparation should be woven seamlessly with basic principles of biochemistry (especially protein structure and function). Instead of two semesters of organic chemistry, the second of which is devoted primarily to organic synthesis, both biologically relevant organic chemistry and biochemistry should be covered during these two semesters. Whereas, previously, biochemistry had not been a formal requirement, completion and mastery of biochemistry will be expected of matriculants going forward. Many possible course sequences can be used to satisfy this requirement, but an integrated sequence that includes biologically relevant general, organic, and biochemistry is preferred. Although a formal two-year course sequence that covers these concepts will meet the chemistry requirement, other innovative approaches (including interdisciplinary courses taught together with human biology) that allow students to master these “competencies,” independent of discrete courses and semester time commitments, are encouraged and will be considered.

○ 3. Physics

In the area of physics, students should be well prepared in biologically relevant areas of mechanics, kinetics, thermodynamics, the properties of matter (quantum theory) and wave theory, electricity and magnetism, and optics. Ordinarily, this requirement is accomplished most readily by a year-long course in physics. Although a formal year-long course that covers these concepts will meet the physics requirement, other innovative approaches (including interdisciplinary courses taught together with biology and biologically relevant physical sciences) that allow students to master these “competencies,” independent of discrete courses and semester time commitments, are encouraged and will be considered.

○ 4. Laboratory Experience

Required laboratory components of biology and chemistry are no longer defined as discretely as they were in the past. Lengthy laboratory components of the required science requirement courses are not necessarily time well and efficiently spent. Proper focus on hypothesis-driven exercises, problem solving, and hands-on demonstrations of important principles should take precedence over lengthy laboratory time commitments that steal time away from other, more productive educational opportunities. Active, sustained participation in faculty-mentored laboratory research experiences is encouraged and can be used to meet requirements for the acquisition of laboratory skills.

○ 5. Computational Skills/Mathematics

○ 6. Analytical and writing skills/Expository Writing

Creative, complex, and compelling discoveries in medicine, as in other fields, involve grappling with good questions borne from close-reading analyses and careful observations. Therefore, effective courses in science and nonscience disciplines should focus on analytical and writing skills. In addition, at a minimum, HMS matriculants should have one year of critical writing/thinking preparation, preferably in a course devoted specifically to the development of expository writing skills. Specific skills students may be expected to master and apply to the fields of medicine and scientific inquiry include the following:

- a. Writing logically and with clarity and style about important questions across disciplines.
- b. Articulating persuasively, both on paper and in oral presentations, focused, sophisticated, and credible thesis arguments.
- c. Appreciating the methodologies that particular disciplines apply for understanding and communicating results effectively.
- d. Approaching evidence with probity and intellectual independence.
- e. Using source material appropriately with scrupulous and rigorous attribution.

Although a specific expository writing course meets this requirement most directly and optimally, potentially, these skills can be honed in a science or nonscience course that requires extensive expository writing. Advanced placement credits cannot be used to satisfy this requirement.

○ 7. Language

Because effective communication among the medical care team and between physicians and patients is so crucial to the delivery of care, all matriculants should be fluent and have a nuanced facility in English. Mastery of a foreign language, although not required, is a valuable skill that expands intellectual and cultural horizons and that reinforces preparation for patient care in a multicultural society.

○ 8. Additional Requirements for the HST Program

In addition to all the above requirements, the HST curriculum requires that students be comfortable with upper-level mathematics (through differential equations and linear algebra), biochemistry, and molecular biology. This is usually demonstrated through upper level course work, but other approaches may satisfy these requirements. In addition, one year of calculus-based physics in college is required.

Hofstra University

Link to website: <http://medicine.hofstra.edu/admission/index.html>

- **There are no specific course requirements at Hofstra.**

Recommendations:

- One year of college Biology with Lab
- Chemistry, to the level of organic or biochemistry
- One year of college Mathematics, preferably including Statistics
- One year of college Physics

- English Literature or Equivalent, including Writing

Additional coursework in embryology, cell biology, ethics, molecular biology and genetics is recommended, but not required, for admission.

Indiana University

Link to website: <http://admissions.medicine.iu.edu/applying-to-the-iu-school-of-medicine/>

Requirements:

- One year of college Biology with Lab
- Chemistry, to the level of organic or biochemistry
- One year of college Mathematics, preferably including Statistics
- One year of college Physics
- English Literature or Equivalent, including Writing

Additional coursework in embryology, cell biology, ethics, molecular biology and genetics is recommended, but not required, for admission.

Jefferson University

Link to website: <http://www.jefferson.edu/university/jmc/admissions/apply/procedure.html>

Requirements:

- A strong preparation in the sciences basic to medical school studies is advised. All prerequisites should be completed within five years of the application year. A variety of college course formats and combinations, including biology, general and organic chemistry, and physics are a minimum. Courses taken to meet the basic requirements should be, in general, comparable to courses accepted for concentration in these disciplines. Courses taken should be supplemented by laboratory experiences.
- Students may take upper level science courses out of educational interest or to fulfill the requirements of their major. Taking additional science courses that cover material taught within the medical school curriculum is not useful to gain admission. If advanced placement credits in required subjects are submitted, additional courses in similar subjects are encouraged.
- Breadth of education is expected. The pursuit of some discipline in depth is encouraged. A successful medical student must effectively acquire, synthesize, apply and communicate information. These are skills which can be developed through a great variety of academic disciplines. Studies in the humanities, the social and behavioral sciences, and the development of effective writing skills are strongly suggested.
- Honors courses and independent study or research are encouraged to explore, in depth, an area of knowledge and to provide scholarly experience which will facilitate a lifelong habit of self-education. All academic requirements should be completed prior to matriculation.

Johns Hopkins University

Link to website: <http://www.hopkinsmedicine.org/admissions>

Requirements:

A. BIOLOGY

- College biology with laboratory, one year (8 semester hours).

The student should have an appreciation for the diversity of life, such as prokaryotes, plants and animals and a familiarity with the life cycles and metabolic activities of these organisms. The student should attain a basic understanding of the structure and function of the mammalian cell and mammalian genetics. The laboratory portion of this requirement is expected to equip the student with practical understanding of the process of scientific inquiry, discovery and application, especially as related to cell and molecular biology.

Please note:

The study of the principles of genetics either in a separate course or as a significant part of another integrated curricular offering is recommended

B. CHEMISTRY

- General college chemistry with laboratory, one year (8 semester hours).

The laboratory portion of this requirement is expected to equip the student with practical understanding of the process of scientific inquiry and with insight into how scientific knowledge is discovered and validated.

(Please note: Applicants with advanced placement in general chemistry can receive 4 semester hours of credit toward this requirement. An additional 4 semester hours in advanced chemistry will be necessary

- Organic chemistry with laboratory, one semester (4 semester hours) are required.
- Biochemistry. Three or 4 semester hours are required. Lab is not required.

The student should have knowledge of chemical equilibrium and thermodynamics, acid/base chemistry, the nature of ions in solution and redox reactions, the structure of molecules with special emphasis on bio-organic compounds, reaction rates, binding coefficients, reaction mechanisms involved in enzyme kinetics and other applications to the understanding of living systems. Also important is a basic understanding of the structure of nucleic acids, including how they store and transfer information.

C. HUMANITIES, SOCIAL AND BEHAVIORAL SCIENCES

The study of the humanities and social and behavioral sciences is an essential foundation for the study and practice of medicine.

- A total of 24 semester hours is required. AP credit acceptable to the student's undergraduate college is allowed for a maximum of twelve (12) credits.

These disciplines foster a broad understanding of humankind and the increasingly diverse cultural and social environment of our world.

D. MATHEMATICS

- Calculus and/or statistics, one year (6-8 semester hours).

Mathematics courses should enable the student to develop equations, to interpret graphical representations of function and to evaluate probability involved in testing hypotheses in the study of natural phenomena. Advanced placement credit for calculus, if acceptable to the student's undergraduate college, may be used in the fulfillment of the math requirement.

Regardless of such credit, it is strongly recommended that applicants take at least one semester of statistics or epidemiology.

E. PHYSICS

- General college physics with laboratory, one year (8 semester hours).

The student should have an understanding of the constants and units of physical measurement, Newtonian mechanics, the physical properties of various states of matter, such as liquids, solids and gasses, and the basic aspects of electricity, magnetism and optics, and their applications to living systems. Advanced Placement credit for physics, if acceptable to the student's undergraduate college, may be used in fulfillment of the physics requirement.

The laboratory portion of this requirement is expected to equip the student with practical understanding of the process of scientific inquiry and to gain insight into how scientific knowledge is discovered and validated.

Keck School of Medicine—University of Southern California

Link to website: <http://keck.usc.edu/en/Education/Admissions.aspx>

- The school has no specific course requirements. They suggest applicants consult the MSAR for recommendations.

Recommended courses:

- Inorganic Chemistry, plus lab (2 semesters)
- Biology, plus lab (2 semesters)
- College English
- Computer Science
- Humanities
- Organic Chemistry, plus lab (1 semester)
- Physics, plus lab (2 semesters)
- Social Sciences
- Molecular Biology (1 semester)
- Statistics
- Spanish

Loma Linda University

Link to website: www.llu.edu/medicine/admissions.page

Requirements:

- General or Inorganic Chemistry (with lab) 8 credits
- Organic Chemistry (with lab) 8 credits
- General Physics (with lab) 8 credits
- English (as required for degree)
- Religion or Ethics (as required by college attended)
- Biochemistry is required.
- Introductory Statistics is recommended.

Louisiana State University

Link to website: <http://www.medschool.lsuhs.edu/admissions>

Requirements:

- Chemistry
 - Eight semester hours of general/inorganic chemistry with laboratory
 - Eight semester hours of organic chemistry with laboratory
- Physics
 - Eight semester hours of general physics with laboratory.
- Biology
 - Eight semester hours of general biology with laboratory.
- English
 - Six semester hours of spoken and written English.

OTHER RECOMMENDED COURSES

Enrollment in any of the following science courses may be beneficial to applicants: biochemistry (strongly recommended), cell biology, comparative vertebrate anatomy, computer sciences, embryology (developmental biology), histology, mathematics, microbiology, molecular genetics, physiology, statistics (epidemiology). Selection from the following arts and humanities courses is recommended: economics, English, ethics, foreign languages, history, philosophy, psychology, public speaking, sociology.

Loyola University

Link website: <http://www.stitch.luc.edu/admission>

Requirements:

1 academic year of general chemistry, general biology, general physics, and organic chemistry--all with laboratory (biochemistry can be substituted for part of the organic requirement)

Marshall University

Link to website: <http://musom.marshall.edu/admissions>

Required Courses	Credits	Competency Level Expected Before Entering Medical School
General biology or zoology (with lab)	8	Demonstrate understanding of the process of scientific inquiry and explain how scientific knowledge is discovered and validated. Explain how organisms sense and control their internal environment and how they respond to external change. Demonstrate an understanding of how the organizing principle of evolution by natural selection explains the diversity of life on earth.
Inorganic chemistry (with lab)	8	Demonstrate knowledge of basic principles of chemistry and some of their applications to the understanding of living systems.
Organic chemistry (with lab)	8	

Biochemistry	3	Demonstrate knowledge of how biomolecules contribute to the structure and function of cells.
Physics (with lab)	8	Demonstrate knowledge of basic physical principles and their applications to the understanding of living systems.
English	6	Demonstrate effective written and oral communication skills along with the ability to critically read and assess information.
Social or behavioral sciences	6	Explain how organisms sense and control their internal environment and how they respond to external change.
Highly Recommended	Credits	
Statistics/Biostatistics or Epidemiology	3	Apply quantitative reasoning and appropriate mathematics to describe or explain phenomena in the natural world.
Cell and Molecular Biology	3	Apply understanding of principles of how molecular and cell assemblies, organs, and organisms develop structure and carry out function.

Mayo Medical School

Link to website: <http://www.mayo.edu/mms/programs/md/admissions-and-application-process/prerequisites>

Requirements:

The following courses are required prior to admission (courses must be completed by June 15th of the year of admission):

- One year of biology and/or zoology (with one year of lab)
- One year of inorganic chemistry (with one year of lab)
- One year of organic chemistry (with one year of lab)
- One year of physics (with one year of lab)
- One course in biochemistry

Medical College of Wisconsin

Link to website: <http://www.mcw.edu/Medical-School/Admissions/Milwaukee-Campus/Apply-MCW-Milwaukee.htm>

Requirements:

- Biology: 4 credits Advanced Biology with lab
 - Anatomy & Physiology, Microbiology, Neurobiology, etc. will satisfy this requirement.
- Chemistry: 3 or 4 credits in Biochemistry, provided course required general *and* organic chemistry as prerequisites
- Physics: 8 credits
- Math: 4 credits
 - Statistics is recommended
- English: 3 credits
 - May use a writing-intensive course to satisfy this requirement.
- Social Sciences: 3 credits
 - Psychology or sociology

Meharry Medical College

Link to website: <http://www.mmc.edu/prospectivestudents/admissions/school-of-medicine/index.html>

Requirements:

- General Biology or Zoology with Laboratory, 8 credits
- Inorganic Chemistry with Quantitative Analysis with Laboratory, 8 credits
- Organic Chemistry with Laboratory, 8 credits
- General Physics with Laboratory, 8 credits
- English Composition, 6 credits

Mercer University

Link to website: <http://medicine.mercer.edu/admissions>

Requirements:

- The premedical course requirements are two semesters with an affiliated laboratory in:
 - General Biology
 - General or Inorganic Chemistry
 - Organic Chemistry
 - Physics

[Note: All applicants must be legal residents of Georgia.]

Michigan State University

Link to website: <http://MDadmissions.msu.edu/>

Requirements:

- Completion of one year of coursework (typically two semesters) in each of the following areas, with no final grade below a 2.0:
 - Social Science/Humanities courses that focus on psychological and social theory, individual and/or group behaviors, or comparative cultures. Recommended courses include anthropology, cultural studies, economics, ethics, psychology, sociology, women's studies, and philosophy.
 - General Biology sequence, including at least one laboratory;
 - General/Inorganic Chemistry sequence, including at least one laboratory;
 - Organic Chemistry sequence, including at least one laboratory
- English, Writing, or Composition. May include "Writing in the Major" or writing-intensive classes; at least 50% of the course grade must be based on written assignments, not exams.
- Mathematics through college algebra or statistics and probability. The mathematics requirement may be waived with Advanced Placement (AP) credit for Statistics and Probability, Calculus 1, or freshman mathematics placement above college algebra.
- Completion of two upper-level biological science courses. Such courses are typically within the following areas: **anatomy**, **biochemistry**, **cell biology**, embryology, **genetics**, microbiology, molecular biology, **immunology**, neuroscience, or **physiology** (courses in bold text are highly recommended). Biochemistry is acceptable as an upper-level biology course, but it cannot be substituted for the second sequence of organic chemistry.

New York Medical College

Link to website: <http://www.nymc.edu/Academics/SchoolOfMedicine/Admissions/index.html>

Requirements:

- General Biology, 2 semesters or equivalent, with labs
- General Chemistry, 2 semesters or equivalent, with labs
- Organic Chemistry, 1st semester or equivalent with lab
- Biochemistry, 1 semester or equivalent, (with or without lab)
- Physics, 2 semesters or equivalent, with labs
- English, 2 semesters or equivalent (or successful completion of the English requirements of your undergraduate institution)

New York University School of Medicine

Link to website: <http://school.med.nyu.edu/md-admissions>

The following courses are recommended:

- English
- General Biology
- Inorganic Chemistry

- Organic Chemistry
- General Physics
- Biochemistry
- Genetics

Northwestern University

Link to website: <http://www.feinberg.northwestern.edu/admissions/index.html>

Requirements:

- Biology, 2 semesters plus lab
- Physics, 2 semesters plus lab
- Inorganic Chemistry, 2 semesters plus lab
- Organic Chemistry, 2 semesters plus lab

Recommended:

- English Composition
- Statistics

Oakland University

Link to website: <http://www.oakland.edu/medicine/admissions/>

Requirements:

- 2 semesters of General Chemistry with lab
- 1 semester of Organic Chemistry with lab
- 2 semesters of Biology with lab
- 2 semesters of Physics with lab
- 2 semesters of college-level mathematics, OR one semester of college-level mathematics and 1 semester of statistics

Recommended:

- 1 semester of Biochemistry
- 2 semesters Social/Behavioral Sciences (sociology, psychology, anthropology)

Additional Recommended Courses/Course Categories

- Humanities:

Courses recommended are in disciplines such as philosophy, history, literature, language, anthropology, ethics, and theology. Studies in these areas deepen the applicant's understanding of the basis for human values and offer the opportunity to develop an appreciation of other cultures and ethnic groups. This background is vital to health care providers.

- Behavioral Science:

Understanding the range of variation of behavior as a biologic, psychological, and social phenomena is essential to the practice of medicine. Courses recommended are in disciplines such as psychology, sociology, cultural anthropology, and ecology.

- English:

Although there is no formal course requirement for English, applicants are expected to have a strong background in writing, oral communication, and critical reading skills.

Ohio State University

Link to website: <http://medicine.osu.edu/students/admissions/Pages/index.aspx>

Required Premedical Coursework:

- Anatomy: One semester/quarter course in anatomy.
- Biology: One year

- General Chemistry: One year that consists of a general chemistry series including laboratory work incorporating quantitative and qualitative analysis
- Biochemistry: One semester/quarter course in biochemistry
- Organic Chemistry: One year of an organic chemistry series that includes a laboratory experience
- Physics: One year with a laboratory experience

Recommended Premedical Coursework:

- Writing/Speech: Courses that emphasize written and verbal communication. Applicants are required to demonstrate spoken, auditory, reading and writing proficiency in the English language.
- Social Sciences: Courses such as psychology, sociology, anthropology and economics
- Humanities: Courses in art, music, drama, literature and languages
- Diversity: Courses that focus on the culture, history and/or current circumstances of diverse populations
- Ethics: Courses that address questions and issues related to morality and moral behavior that may include meta-ethics, normative ethics, applied ethics, moral psychology and descriptive ethics

Anatomy Prerequisite

We require one introductory semester or quarter of vertebrate or human anatomy. (Note that this is a pre-matriculation requirement; it is not a requirement to apply or interview at The Ohio State University College of Medicine.) You have several options to fulfill this requirement, including, but not limited to following:

- A human anatomy course at your home institution or your local community college
- The Ohio State University offers courses that provide excellent preparation: Anatomy 2300, Anatomy 3300, and EEOB 2510
- Online courses: Students in recent entering classes of our College of Medicine have taken the following courses.
 - Recommended online courses
 - Colorado State University: BMS 310: Anatomy for Health Professionals
 - University of Cincinnati-Claremont College: BIOL 1015 Introduction to Anatomy and Physiology
 - West Virginia University: NBAN 205. There is an optional lab; we do not require the lab
 - Sinclair Community College: BIO 1107/1108 Human Biology. We do not require the lab.
 - Acceptable online courses
 - Brigham Young University: PDBIO 210 Human Anatomy

Oregon Health and Science University

Link to website: <http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/md-program/admissions/index.cfm>

Requirements:

- Biology
 - One academic year of general biology to include one genetics course. Laboratories are recommended
- Chemistry
 - One course each of general chemistry, organic chemistry and biochemistry. Laboratories are recommended. (Since undergraduate curricula vary from school to school, in fulfilling this requirement it is implied that the required prerequisite sequences in general and organic chemistry will have been completed in order to take the biochemistry course.)
- Physics
 - One academic year of general physics. Laboratories are recommended.
- Mathematics
 - One mathematics course (not including statistics). A course in statistics is strongly recommended.
- Humanities, Social Studies and English
 - Two academic years of humanities and/or social sciences to include one course in English composition (or equivalent writing emphasis).

Penn State College of Medicine

Link to website: <https://www2.med.psu.edu/mdadmissions/admissions/application-process/admissions-requirements/>

Requirements:

- **Biology**
 - One year (two courses) of college biology plus laboratory is required. The importance of genetics and genomics is rapidly increasing in biomedical science and familiarity with evolution, ecology, and natural history is very helpful.
- **Chemistry**
 - Two years (four courses) of college chemistry (organic and inorganic) with laboratory is required. The principles of physical chemistry are particularly helpful.
- **Humanities**
 - One half year (one course) of humanities is required. Courses recommended are in disciplines such as philosophy, history, literature, language, anthropology, ethics, and theology. Studies in these areas deepen the student's understanding of the basis for human values and offer the opportunity to develop an appreciation of other cultures and ethnic groups. This background is vital to the health care providers.
- **Physics**
 - One year (two courses) of college physics with laboratory is required. Physics provides an important basis for understanding quantitative medical science. Students should have exposure to nuclear sciences, electromagnetic radiation, and radiobiology.
- **Mathematics**
 - One year (two courses) of college mathematics is required. Biomedical science emphasizes the quantitative approach. Students should have a background in calculus, basic statistical methods, and probability.
- **Behavioral Science**
 - One half year (one course) of college study in the behavioral sciences is required. Understanding the range of variation of human behavior as a biologic phenomenon is essential in the practice of medicine. Courses recommended are in disciplines such as psychology, sociology, cultural anthropology, and human ecology.
- **English**
 - Although there is no formal course requirement for English, students are expected to have a strong background in writing, oral communication, and critical reading skills.

Quinnipiac University

Link to website: <http://www.quinnipiac.edu/academics/colleges-schools-departments/school-of-medicine/admissions>

Requirements:

- General Biology, 2 semesters with lab
- General Chemistry, 2 semesters with lab
- Organic Chemistry, 2 semesters with lab
- General Physics, 2 semesters with lab
- College English, 2 semesters
- College Mathematics, 2 semesters (college algebra or above)

Rosalind Franklin University of Medicine and Science

Link to website: <http://www.rosalindfranklin.edu/Degreeprograms/AllopathicMedicine/appNeeds.aspx>

Requirements:

- General Biology, with lab, 8 credits
- General Chemistry, with lab, 8 credits
- Organic Chemistry, with lab, 8 credits*
- Physics, with lab, 8 credits

* Biochemistry with at least one semester/summer of laboratory bench research experience may be substituted for a semester of Organic Chemistry.

Rutgers New Jersey Medical School

Link to website: <http://njms.umdnj.edu/education/admissions>

Requirements:

- General Biology (with lab) 2 semesters
- General Chemistry (with lab) 2 semesters
- Organic Chemistry (with lab) 2 semesters
- General Physics (with lab) 2 semesters
- English 2 semesters

Recommended Coursework:

- Biochemistry
- College Mathematics
- Genetics

Rutgers Robert Wood Johnson Medical School

Link to website: http://rwjms.rutgers.edu/education/admissions/selection_process.html

Requirements:

- Biology or Zoology (with Laboratory): 2 semesters
- Inorganic Chemistry (with laboratory): 2 semesters
- Organic Chemistry (with laboratory): 2 semesters
- Physics (with laboratory): 2 semesters
- College Mathematics: 1 semester
- English: 2 semesters
 - English requirement must include one semester of a college writing course. College approved "intensive writing courses" may substitute for English.

NOTE: Other courses which are not required for admission but may be helpful include biochemistry, cell and molecular biology, biostatistics and Spanish.

Stanford School of Medicine

Link to website: <http://med.stanford.edu/md-admissions/how-to-apply/academic-requirements.html>

Stanford School of Medicine does not have specific course requirements, but a recommended preparation for the study of medicine.

- Biology
 - Applicants must demonstrate knowledge of how biomolecules contribute to the structure and function of cells; an understanding of principles of how molecular and cell assemblies, organs, and organisms, develop structure and carry out function; explain how organisms sense and control their internal environment and respond to external change; and demonstrate an understanding of how the organizing principle of evolution by natural selection explains the diversity of life on earth.
- Chemistry and Physics
 - Applicants must demonstrate knowledge of basic principles of chemistry and physics, and their applications to the understanding of living systems.
- Physics and Mathematics
 - Applicants must be able to apply quantitative reasoning, statistical principles and appropriate mathematics to describe or explain phenomena in the natural world and evaluate the published scientific literature.
- Laboratory or Field Experiments
 - Applicants must demonstrate understanding of the processes of scientific inquiry, and explain how scientific knowledge is discovered and validated, through hands-on laboratory or field experiences.
- Behavioral and Social Sciences

- A patient-centered approach to health care requires an understanding of the patient as an individual and a member of a family, community, and society. Applicants must develop an understanding of behavioral and social processes and their use to predict or influence health outcomes or health risk factors.
- Communication
 - Applicants must be able to write clearly, speak fluently and read English with excellent comprehension. Fluency in a foreign language, specifically Spanish or an Asian language, is recommended to enhance learning and service in our diverse communities.

SUNY Buffalo

Link to website: <http://medicine.buffalo.edu/education/admissions.html>

Requirements:

- Biology with a lab (with not more than one semester of botany): 2 semesters
- Chemistry with a lab: 2 semesters
- Organic chemistry with a lab: 2 semesters
- General physics (lab optional): 2 semesters
- English: 2 semesters

Recommended Courses:

- Social Sciences
 - We recommend that you take four courses in this discipline, considered as important for prospective medical students as those in the physical and biological sciences.
- Humanities
 - In addition to the prerequisite English courses, we recommend that you take two humanities courses.
- Additional Courses
 - Based on our curriculum, we strongly encourage you to take a statistics course as well as courses in biochemistry, genetics and molecular biology.

SUNY Downstate Medical Center

Link to website: <http://sls.downstate.edu/admissions/com/requirements.html>

Requirements:

- | | |
|--|-----------|
| ● English * | 6 credits |
| ● General Biology or Zoology including labs | 8 credits |
| ● General Physics including labs | 8 credits |
| ● General or Inorganic Chemistry including labs ** | 8 credits |
| ● Organic Chemistry including labs | 8 credits |

* In general, the Committee does not accept English courses taken abroad to fulfill the English admission requirement. Courses which have the English department prefix are accepted to fulfill the English requirement. If you have an interdisciplinary course or if your college or university accepts other courses to fulfill writing or English requirements, please email a scanned letter from your college stating this information to medadmissions@downstate.edu.

** If your college/university offers an intensive one-semester general or inorganic chemistry course with lab for qualified students, and considers this equivalent to the traditional two-semester course, you may use this to satisfy our requirement for general chemistry. However, you should also take a higher level chemistry course, preferably Biochemistry. In addition, you should indicate on the Supplemental Application that the one-semester course is an advanced general or inorganic chemistry course, and email to medadmissions@downstate.edu, a copy of the catalog description or a letter from the Department of Chemistry verifying this.

The Committee on Admissions looks favorably on a program of study that includes at least one year of college mathematics and advanced science subjects. **A course in biochemistry is strongly recommended.** Other desirable courses include anatomy, physiology, histology, cell biology, genetics, neuroscience, statistics, biostatistics, sociology, and psychology.

SUNY Upstate Medical Center

Link to website: <http://www.upstate.edu/com/admissions/>

Requirements:

- General Biology I & II w/labs
- General Chemistry I & II w/labs
- Organic Chemistry I
- Biochemistry
- General Physics I & II w/labs
- Writing/Composition
- English elective
- Statistics (3hrs)

Temple University

Link to website: http://www.temple.edu/medicine/admissions/prospective_students/md_applicants.htm#requirements

Requirements:

- Biology, including lab, 8 credits
- General Physics, including lab, 8 credits
- General or Inorganic Chemistry, including lab, 8 credits
- Organic Chemistry, including lab, 8 credits
- Humanities, 6 credits

Texas A&M University

Link to website: <http://medicine.tamhsc.edu/admissions>

Requirements:

- General Biology (with labs) 8 semester hours
- Advanced Biological Sciences 6 semester hours
 - Biochemistry is required* 3 semester hours
- General Chemistry (with labs) 8 semester hours
- Organic Chemistry (with labs) 8 semester hours
- General Physics (with labs) 8 semester hours
- Math-based Statistics** 3 semester hours
- English 6 semester hours

* The Biochemistry requirement may be used towards fulfilling part of the Biological Sciences requirement. The course may be taught in the Biology, Biochemistry or Chemistry department. It cannot be an introductory course, and it must be a course that is applied toward a baccalaureate degree in any traditional science field and designed for Biochemistry majors or an equivalent course. For a one-semester required Biochemistry course the following need to be covered in the course material for it to satisfy the requirement:

- pH
- Protein structure and function
- Nucleic acid synthesis
- Carbohydrate metabolism
- Lipid structures and metabolism
- Amino acid metabolism
- Enzyme kinetics
- Electron transport
- Oxidative phosphorylation
- One carbon

** The Statistics course should be taught in the Math or Statistics Department. Statistics courses taught in other departments may be considered with appropriate documentation and approval of the Dean of Admissions. Fundamentally, the course should:

- Address methods that set up experiments that maximize a student's ability to draw meaningful conclusions
- Explore designed and un-designed experiments involving factorial, nested, split and repeated measures
- Explore regression and correlation
- Exercise the collection, analysis, and interpretation of data

Texas Tech University

Link to website: <http://www.ttuhs.edu/som/admissions/reqs.aspx - prereqs>

Requirements:

- General Biology or Zoology, 6 credits
- Upper Division Biology, 6 credits
 - Biology labs, 2 credits
- General Chemistry, 6 credits
 - General Chemistry lab, 2 credits
- Organic Chemistry, 6 credits
 - Organic Chemistry labs, 2 credits
- Biochemistry, 3 credits (may be used to fulfill either the Biology OR the Chemistry requirements)
- Physics, 6 credits
 - Physics labs, 2 credits
- English, 6 credits
- Statistics offered by a Math Department, 3 credits

Tufts University

Link to website: <http://www.tufts.edu/med/admissions>

Coursework Prerequisites:

- Biology: Full year of introductory or advanced biology coursework. Any courses offered by the biology department for science majors are acceptable.
- Chemistry: Two years of chemistry coursework that includes at least one semester course in general chemistry and one semester course in organic chemistry. A semester course in biochemistry is highly recommended and may count towards the two year total. Examples (in semesters): 2 general + 2 organic, or 2 general + 1 organic + 1 biochemistry, or 1 general + 2 organic + 1 biochemistry
- Physics: A semester of physics coursework. Any course offered by the physics department for science majors is acceptable.

Competency Prerequisites:

- English: Competency in spoken and written English. Literature coursework is not required. Completing a bachelor's degree in an English speaking college or university demonstrates this competency.
- Math: Competency in the basic concepts of statistics. May be acquired through an introductory course in statistics, as a topic in a science or social science course, or through experience with a research project.
- Biology: Competency in Mendelian Genetics as well as Cell and Molecular Biology. Usually acquired in introductory biology courses. Upper level courses in genetics and/or cell and molecular biology are helpful but not required.
- Laboratory: Competency in laboratory skills equivalent to two years of laboratory course work. Usually acquired in the laboratory sections of biology and chemistry courses. Laboratory experience in other settings, including employment settings, is also acceptable. Applicants are generally expected to take the laboratory component of undergraduate science courses when available.

University of Alabama

Link to website: <http://www.uab.edu/medicine/home/education/prospective>

Requirements:

- General Biology: 8 semester hours
 - Embryology and Genetics Recommended
- General Chemistry (with lab): 8 semester hours
- Organic Chemistry (with lab): 8 semester hours
 - We also accept a 4-semester/term sequence of chemistry that includes general/inorganic chemistry, organic chemistry and biochemistry from schools offering this chemistry course sequence.
- General Physics (with lab): 8 semester hours
 - We accept AP or CLEP credit for Physics
- College Mathematics: 6 semester hours
 - College level math and/or statistics courses is required.
 - Applicants awarded AP or CLEP credit for calculus may receive 3 hours credit toward meeting the minimum requirement.
 - Courses in statistics or biostatistics are strongly recommended.
 - Computer science courses are not accepted to meet the math requirement.
- English: 6 semester hours
 - If your school requires writing composition, literature or interdisciplinary reading and writing intense courses in lieu of courses that are listed as “English” on the transcript, please indicate in your Secondary Application the courses on your transcript that you believe meet this requirement

University of Arizona

Link to website: <http://www.medicine.arizona.edu/>

Requirements:

- Biology, 2 semesters (lab recommended)
- Chemistry, 2 semesters (lab recommended)
- Organic Chemistry/Biochemistry, 2 semesters (lab recommended)
 - This can be met with either two semesters of organic chemistry or one of organic chemistry and one of biochemistry
- Physics, 2 semesters plus lab
- English, 2 semesters

Recommended:

- Social/Behavioral Sciences (e.g. Psychology, Sociology), 2 semesters
- Biostatistics, 1 semester
- Second Language, Conversational Proficiency is recommended.

University of California – Davis

Link to website: <http://www.ucdmc.ucdavis.edu/mdprogram/admissions/>

Requirements:

- Biological Sciences: 1 year
- Chemistry, general and organic sequence: 2 years
- Physics: 1 year

University of California – Irvine

Link to website: <http://www.meded.uci.edu/Admissions>

Requirements:

- Biology, 1.5 years, plus lab (must include one upper-division Biology course)
- Chemistry, 2 years, plus one lab (must include biochemistry course and inorganic and organic chemistry courses)

- Physics, 1 year
- Math, 1 semester of calculus, 1 semester of statistics
- English, 1 semester (English or writing composition)

University of California – Los Angeles

Link to website: <http://www.medstudent.ucla.edu/prospective/>

Requirements:

- English, One year of college English to include the study of English composition
- Physics, One year of college Physics (with lab)
- Chemistry, Two years of college chemistry to include the study of inorganic chemistry, quantitative analysis and organic chemistry (with lab)
- Biology, One year of general biology (with lab)
- Mathematics, One year of college mathematics to include the study of introductory calculus and statistics

Recommendations:

- Spanish, highly recommended
- Humanities, highly recommended

University of California – San Diego

Link to website: <http://meded.ucsd.edu/admissions>

Requirements:

UCSD does not have requirements regarding coursework that must be completed.

Recommendations:

- One academic year (2 semesters) of college-level Biology
- One academic year (2 semesters) of college-level General Chemistry
- One term (1 semester) of college-level Biochemistry
- One academic year (2 semesters) of college-level Organic Chemistry
- One academic year (2 semesters) of college-level Physics
- One academic year (2 semesters) of college-level Calculus or Statistics
- Laboratory coursework for all courses that offer corresponding labs

University of Central Florida

Link to website: <http://www.med.ucf.edu/admissions>

Requirements:

- General Biology – 2 Semesters (with labs)
- General Chemistry – 2 Semesters (with labs)
- Organic Chemistry* – 2 Semesters (with labs)
- General Physics – 2 Semesters (with labs)
- College English** – 2 Semesters
- College Math – 2 Semesters

*Biochemistry (with lab) may be substituted for the second semester of Organic Chemistry.

**Writing Intensive courses may be substituted for English on a case by case basis.

University of Chicago

Link to website: <http://pritzker.uchicago.edu/admissions/>

Requirements:

- Pritzker has a standard entrance requirement for a total of 32 semester credit hours (using AMCAS methodology) of undergraduate science comprised of an 8-credit, academic year each of General Chemistry, Organic Chemistry, General Physics, and Introductory Biology, all with accompanying laboratory.

Recommended:

- Additional coursework is recommended in the following areas: Biochemistry with an accompanying laboratory, Humanities, Social Sciences, Calculus, Statistics, College English, Genetics.

University of Colorado

Link to website:

<http://www.ucdenver.edu/academics/colleges/medicalschool/education/Admissions/Pages/Admissions.aspx>

Requirements:

- 8 semester hours - human biology (with lab),
- 8 semester hours - general chemistry (with lab),
- 8 semester hours - organic chemistry (with lab),
- 8 semester hours - general physics (with lab),
- 6 semester hours - English literature/composition
- 6 semester hours - College level mathematics (algebra and above)

University of Connecticut

Link to website: <http://medicine.uhc.edu/prospective/index.html>

Requirements:

One year of college credit with lab in each of the following:

- General Chemistry
- Organic Chemistry
- Physics
- Biology or Zoology

Recommended:

- English – Courses in composition and literature are strongly recommended

University of Florida

Link to website: <http://admissions.med.ufl.edu/>

Requirements:

- Biology – 2 semesters, with labs (8 credit hours)
- General Chemistry - 2 semesters, with labs (8 credit hours)
- Organic Chemistry – 1 semester, with lab (4 credit hours)
- Biochemistry - 1 semester (3 or 4 credit hours, lab if offered is recommended)
- Physics – 2 semesters, with labs (8 credit hours)

University of Iowa

Link to website: <http://www.medicine.uiowa.edu/md/admissions>

Requirements:

- **Physics**, A complete introductory course (1 year), including lab and instruction
- **Mathematics**, An advanced college mathematics course or a statistics course.
- **Biochemistry**, Which can be taken to fulfill either part of the chemistry or the advanced biology requirement.
- **Chemistry**, A minimum of 2 years of chemistry to include general and organic both with labs, and biochemistry.
- **Biological Sciences**, A complete introductory course in the principles of biology with the appropriate laboratories, and an advanced biology course (1 semester). Recommended advanced biology courses include biochemistry, molecular & cell biology, human physiology, genetics, or microbiology.
- **English**, Two courses (to include composition and literature). This may be waived if your school integrates a writing requirement into courses across the curriculum.
- **Social and Behavioral Sciences, Humanities**, Four courses. As writing skills are important in the study and practice of medicine, candidates are encouraged to fulfill this requirement with courses that include a writing

component. Recommended courses include behavioral psychology, foreign language and other courses that encourage a greater appreciation for diversity and cultural competency.

University of Kansas

Link to website: <http://www.kumc.edu/school-of-medicine/education/admissions.html>

Requirements:

- General Biology, 2 semesters
- Inorganic (General) chemistry (with lab), 2 semesters
- Organic chemistry (with lab) OR General Organic chemistry (with lab) and General Biochemistry lecture, 2 sem
- Physics (with lab), 2 semesters
- English composition or writing-intensive courses, 2 semesters
- Mathematics, college-level algebra or above, 1 semester

Recommendations:

- Biochemistry (strongly encouraged)
- Genetics (strongly encouraged)
- Other upper-level biology
- Natural sciences
- Behavioral and social sciences
- Humanities
- Oral and written communications
- Social determinants of health (examples include cultural or social anthropology, public or population health, epidemiology, environmental health, health economics, health policy, history of medicine or public health, ethics related to health care)

University of Kentucky

Link to website: <http://www.mc.uky.edu/meded/admissions/index.asp>

Requirements:

- Two semesters of biology with laboratories
- Two semesters of general chemistry with laboratories
- Two semesters of organic chemistry with laboratories
- Two semesters of physics which include laboratory work
- Two semesters of English with emphasis on communication skills

University of Louisville

Link to website: <http://www.louisville.edu/medschool/admissions>

Requirements:

- **BIOLOGY** (8 credits): is fulfilled by one semester of cellular biology with lab and one semester of organismic biology with lab. Survey courses (an introductory course of study that provides a general view of an academic subject) in anatomy or physiology cannot be substituted for this requirement. AP Biology is not accepted. If your undergraduate institution accepted AP Biology, two upper level Biology courses with labs will be acceptable.
- **GENERAL CHEMISTRY** (8 credits): requirement is met by a one-year course in general inorganic chemistry with labs.
- **ORGANIC CHEMISTRY** (8 credits): requirement is met by a one-year course in organic chemistry with labs. The course in organic chemistry should cover all of the major categories of organic compounds.
- **PHYSICS** (8 credits): requirement is met by a one-year course in general physics with labs, including mechanics, electricity, heat, light and sound. Specialized courses in sub-disciplines cannot be substituted for any part of this requirement.
- **ENGLISH** (6 credits): requirement is met by 2 semesters of writing and/or literature courses in English. One semester may be substituted with a writing intensive course. AP credit is acceptable for 1 semester of English with an AP test score of 4 or 5. We will not accept 2 semesters of AP English credit to meet this requirement.
- **MATHEMATICS** (6 credits Math or 3 credits Calculus): is met by one year of college level math (statistics is included as a math course) or one semester of Calculus (Calculus is recommended).

Recommendations:

- A biochemistry course is strongly encouraged to further strengthen the premedical academic foundation. A biochemistry lecture course may substitute for the second semester organic chemistry lab requirement.

University of Maryland

Link to website: <http://www.medschool.umaryland.edu/admissions>

Requirements:

- Biological Sciences (with lab), 8 credits
- Inorganic Chemistry (with lab), 8 credits
- Organic Chemistry (with lab), 8 credits
- General Physics (with lab), 8 credits
- English, 6 credits

University of Massachusetts

Link to website: <http://www.umassmed.edu/som/admissions>

Requirements:

- **Biology:** A one-year general biology or zoology course, with a laboratory component is required. Students wishing to pursue additional course work in the biological sciences should consider genetics, embryology, cell biology, or comparative anatomy.
- **Chemistry:** One year of inorganic and one year of organic chemistry each with a lab are required. Students interested in advanced courses are advised to consider biochemistry or physical chemistry.
- **Physics:** A one year course in general physics with a lab is required.
- **English:** At least one year of college level English literature or composition is required. Applicants must demonstrate proficiency in the three domains of the English language which include reading, writing, and oral communications skills for a number of reasons. The rapid expansion of the volume of medical literature and published research requires the ability to read rapidly with sound comprehension. Reading aptitude is therefore essential for learning as a student as well as for ongoing lifelong learning as a medical professional. Future physicians must also be able to write clearly, accurately, and succinctly. Furthermore, the fundamental relationship between doctor and patient requires an ability to communicate verbally with empathy, clarity, and respect. Finally, in professional relationships, the physician must communicate orally with other members of the health care team in a clear, concise, accurate, and effective manner.

University of Michigan

Link to website: <http://www.med.umich.edu/medschool/admissions/>

Requirements:

- 1 year of Inorganic Chemistry with laboratory experience
- 1 year of Organic Chemistry with laboratory experience
- 1 semester of Biochemistry
- 1 year of Biology with laboratory experience
- 1 year of Physics with laboratory experience
- 2 semesters of intensive writing courses
- 6 semesters of additional non-science courses

Recommendations:

In addition to appropriate science preparation, the University of Michigan Medical School encourages students to select from among the following courses during their undergraduate years:

- Comparative Health Care System
- Epidemiology
- Gender and Health
- Genetics and Cell Biology
- Health Policy

- Health Services Research and Evaluation
- Human Physiology
- Introduction to the American Health Care System
- Medical Anthropology
- Medical Ethics
- Medical Economics or Finance
- Medical History
- Medical Sociology
- Psychology and Sociology of Aging
- Statistics

Students applying to enter medical school in the fall 2016 may fulfill the prerequisites listed above OR meet the expectations below that will be in place for the entering classes of 2017 and beyond:

UMMS will look positively upon individuals that have discovered personal areas of academic interest through their curricular and extracurricular activities and have worked to independently develop, refine and distinguish their experiences to improve and advance healthcare.

Since the many fields of medicine offer opportunities for those talented in both humanities and the sciences, students should allow personal interests and their passion to dictate their choice of an undergraduate major.

UMMS Admissions Prerequisites:

- A rigorous experience and involvement in the humanities that emphasize the written and verbal communication of ideas and concepts with an understanding and competency in ethical and analytical decision-making that includes its historical and societal background and relevance. Courses offering a social science or philosophical context can provide future doctors with insights that are crucial to the discharge of their professional responsibilities.
- Academic strength and rigor in the field of biology that encompasses the core concepts of cell biology, developmental biology and molecular biology and genetics. We will look for emphasis in human biology, but not to the exclusion of other life systems.
- Academic strength and rigor in the field of chemistry that encompasses core concepts of biochemistry and biologically applicable elements of inorganic and organic chemistry such as enzymatic reactions and principles of protein structure and function.
- Clear evidence of the ability to demonstrate knowledge of basic physical principles and their applications to the study and understanding of living systems such as thermodynamics and fluid dynamics is required; however, the University of Michigan will not require a dedicated course in physics.
- Academic strength and rigor in statistical methods and analysis.
- A clear and distinct experience in intellectual inquiry and active participation in the independent discovery of new knowledge.

UMMS Admissions Core Competencies:

All candidates will present evidence of academic strength and rigor in the following areas:

- Analytical Thought and Problem-Solving Skills
- Written and Verbal Communication
- Mathematical/Statistical Analysis
- Application of the Hypothesis-Driven Methods of Research

Our applicants will be evaluated on the characteristics that distinguish them in the following parameters:

- Academic excellence
- Altruism
- Communication
- Desire to learn
- Integrity and Ethics
- Leadership
- Reliability and Dependability
- Resilience and Adaptability
- Social/interpersonal skills and Teamwork

These attributes will be assessed as part of our overall evaluation of students not only at the time of application with self-assessments and other documentation, but also throughout their medical school careers.

University of Minnesota

Link to website: <http://www.med.umn.edu/medical-school-students>

Requirements:

- **Biology with lab**
 - Biological sciences coursework with emphasis on general principles, cell biology and/or physiology
 - 1 semester
- **Chemistry with lab**
 - General or Organic Chemistry
 - 1 semester
- **Life sciences (additional courses)**
 - Biology, genetics, zoology, botany, parasitology, biochemistry, chemistry (general or organic, but must be in addition to the general or organic chemistry listed above), physics, etc. *At least 2 must be upper-level courses.*
 - 4 semesters
- **Humanities or social sciences**
 - Humanities or social sciences upper-level course, with an intensive writing requirement.
 - 1 semester or 1 quarter

Recommended:

- Biochemistry
- Ethics
- Genetics
- Psychology
- Statistics
- Foreign language
- Independent learning courses
- Seminar-type courses involving small group discussions
- Social and behavioral sciences and humanities

University of Mississippi

Link to website: http://www.umc.edu/Education/Schools/Medicine/SOM_Admissions/Admissions_Criteria.aspx

The following chart contains the current prerequisites for the SOM. These will be valid for the entering classes of 2016 and 2017. However, starting in 2015, applicants may choose to be assessed by the new system which will be an option for 2015, 2016, 2017 entering classes. Beginning with the 2018 entering class, the new system will be the only option (see below).

Traditional Applicant Must take all pre-requisites described below or acceptable substitutes			Non-Traditional Applicant Must take pre-requisites described for Traditional Applicant
Course	Credits	Substitute	But
Biological Science	8 (6 lecture + 2 lab)	Equal credits of higher level BIOL	If any core pre-requisite course(s) is 10 years old, retake that course(s). If ALL pre-requisites 10 years old, recommend re-taking 32 core credits; however, accept 32 credits of either upper level BCPM beyond Advanced Science requirement or graduate BCPM.
Freshman Chemistry	8 (6 lecture + 2 lab)	Equal credits of higher level CHEM	
Organic Chemistry	8 (6 lecture + 2	Equal credits of higher level CHEM	

	lab)		
Physics	8 (6 lecture + 2 lab)	Equal credits of higher level PHYS	
Core	32		32
English	6	Other writing intensive courses (writing for scientists, honors, courses, specifically petitioned, thesis credits)	No need to repeat
Math (Trigonometry, Algebra)	6	3 credits Calculus	No need to repeat
Advanced Science	6	Any junior or senior level BCPM courses	No need to repeat
Other	18		
Total	50		

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End-point Courses:

Undergraduate institutions will decide acceptable pathways to these end-point courses that may include traditional course requirements, condensed or novel requirements, AP credit and online course work.

The following courses are required:

- Life Sciences: 2 semesters of any combination of the following:
 - Zoology
 - Cellular Biology
 - Molecular Biology
 - Physiology
 - Anatomy
- Biochemistry: 1 semester
- Physics: 2nd semester

Familiarity with the following subjects is recommended; content might be acquired by taking courses by that name, courses with different names but similar content or self-study:

- Algebra
- Statistics
- Psychology
- Sociology

University of Missouri

Link to website: <http://medicine.missouri.edu/admissions/>

Requirements:

- English composition or writing intensive, 2 semesters
- College-level mathematics (college algebra or above), 1 semester
- Biologic Sciences, 2 semesters of lecture plus lab
 - e.g. biology, genetics, cell biology, animal physiology, molecular biology, histology
- General chemistry, 2 semesters of lecture plus lab
- Organic chemistry, 2 semesters of lecture plus lab
- General physics, 2 semesters of lecture plus lab

University of Nebraska

Link to website: <http://www.unmc.edu/com/admissions.htm>

Requirements:

- **Biology (with lab) 8-10 semester hours**
Two semesters of general biology or zoology meet this requirement.
 - **General Chemistry (with lab) 8-10 semester hours**
This requirement should include a two semester complete course in general or inorganic chemistry.
 - **Organic Chemistry (with lab) 8-10 semester hours**
This requirement should include a two semester complete course in organic chemistry.
 - **Physics (with lab) 8-10 semester hours**
This requirement should include a two semester complete course in physics.
 - **Humanities and/or Social Sciences 12-16 semester hours**
Courses in the following may be used to fill this requirement: art, dramatic arts/theater, literature, English, music, foreign language, sociology, anthropology, psychology, child development, journalism, economics, geography, geology, speech, communications, history, government, political science, philosophy, religion, women's studies, and any ethnic studies courses.
 - **Calculus or Statistics 3 semester hours**
A one semester course in introductory calculus OR statistics will meet this requirement.
 - **English Composition minimum of 3 semester hours**
Students are required to have at least one semester of English composition or a comparable writing course. Students may not substitute a placement examination in lieu of this requirement.
 - **Biochemistry 3 semester hours**
 - **Genetics 3 semester hours**
- Pass-fail courses, CLEP and AP course credits will not be accepted towards your entrance requirements.

Recommended:

Courses in molecular biology, immunology and microbiology, though not required, are helpful in preparing for the basic science curriculum of medical school. Interpersonal communications, ethics, and personnel management are also good preparatory courses.

University of Nevada

Link to website: <http://medicine.nevada.edu/asa/admissions/applicants/selection-factors/course-requirements>

Requirements:

- Biology (must include 6 semester hours of upper division credit), 15 semester hours
- Inorganic Chemistry, 8 semester hours
- Organic Chemistry, 8 semester hours
- Physics, 8 semester hours
- Psychology or Abnormal Psychology, 3 semester hours
- Biochemistry, 3 semester hours

Recommended:

- microbiology
- genetics
- calculus
- statistics
- immunology

University of New Mexico

Link to website: <http://hsc.unm.edu/som/admissions/>

Requirements:

- General Biology I & II, plus lab, 1 academic year
- General Chemistry I & II, plus lab, 1 academic year

- Organic Chemistry I & II, plus lab, 1 academic year
- General Physics I & II, NO lab, 1 academic year
- Biochemistry, NO lab, 1 semester

University of North Carolina – Chapel Hill

Link to website: <http://www.med.unc.edu/admit>

Requirements:

- Biology including at least one course with lab, 8 semester hours.
 - It is strongly suggested that students take at least one course in Cell and Molecular Biology or Genetics,
- General and Organic Chemistry with labs, 16 semester hours
 - In addition, a course in Biochemistry is strongly recommended,
- General Physics with labs, 8 semester hours
- English, 6 semester hours
 - Please note that if you satisfy your undergraduate institution's English or Literature requirement for your degree program, you will also satisfy ours.
- Behavioral or Social Sciences, 3 semester hours
 - e.g., Humanities, Psychology, Anthropology, Sociology, Social Diversity, etc.
- Advanced Placement (AP) courses are accepted as long as they appear on your official transcript. If you have received AP credit for any of the required science courses, we strongly advise you to consider taking advanced level college courses to enhance your academic preparation for medical school.

University of North Dakota

Link to website: <http://www.med.und.edu/studentaffairs/>

Requirements:

- Chemistry (with lab), 16 credits total
 - Inorganic and qualitative, 8 credits
 - Organic, 8 credits
- Biology (with lab), 8 credits
- Physics (with lab), 8 credits
- Psychology/Sociology, 3 credits
- Language Arts (English, Speech, etc), 6 credits
- College Algebra, 3 credits

Note: A semester of Biochemistry may substitute for the second semester of Organic Chemistry.

University of Oklahoma

Link to website: <http://www.oumedicine.com/collegeofmedicine/information-about-/admissions>

Requirements:

- General Zoology/Biology with Lab, 1 semester
- Genetics, Cellular Biology, or Molecular Biology (your choice), 1 semester
- General Chemistry, 2 semesters
- Organic Chemistry, 2 semesters
- Physics, 2 semesters
- Sociology, Philosophy, Psychology, or Humanities (any combination), 3 semesters
- English, 2 semesters

Recommendations:

- Biochemistry
- A writing-intensive English course*

* A writing-intensive course should include instructional objectives and graded assignments that are designed to enhance college-level writing skills.

University of Pennsylvania

Link to website: <http://www.med.upenn.edu/admiss>

The Perelman School of Medicine seeks students with a broad education and rigorous science preparation. Requirements for admission are based on academic competencies which are not based on specific courses but rather on the cumulative achievement of knowledge and skills required to become a physician. Your undergraduate or post-baccalaureate program can provide you with course information, identified by that educational institution as providing the best preparation for study in medical school. All applicants must have a BS or BA degree from an accredited college or university (in the US or Canada) prior to matriculation.

Academic Competencies:

- **English/Communication**

- Applicants must have competence in writing, speaking, and reading the English language; that is, they should have the ability:
 - To write expository prose that is clearly organized and largely free of errors in grammar, punctuation, and spelling;
 - To present material orally with appropriate fluency; and
 - To read and critically appraise general and technical writing.

- **Biology**

- The student should prepare for studying the human organism by gaining an understanding of the basic biological principles shared by all living organisms. The knowledge gained through this preparation should include:
 - An appreciation of the diversity of life, including viruses, prokaryotes, plants and animals, and familiarity with the typical life cycles and metabolic activities of these organisms;
 - An understanding of nucleic acid structure and how nucleic acids are utilized to store and transfer biological information; and
 - An understanding of the basic structure and function of the eukaryotic cell, particularly of the role of subcellular organelles and chromosomes in metabolism and cell division.

- **Chemistry**

- Much of our understanding of the molecular basis of life is rooted in the principles of physical, inorganic, and organic chemistry. In order to acquire knowledge of chemistry adequate to maintain competence as a physician, students of the life sciences should:
 - Understand the principles of chemical equilibria and thermodynamics, particularly in the area of acid-base balance, ionization in aqueous solutions and redox reactions;
 - Be able to describe the structure of molecules and understand the basic experimental methods used to determine these structures. Emphasis should be placed on the molecular architecture of organic compounds because of their importance in the biological sciences; and
 - Be familiar with the quantitative and qualitative aspects of reaction rates, binding constants, and reaction mechanisms, particularly in regard to enzyme catalysis.

- **Physics and Mathematics**

- Mathematics is the common language of all quantitative science. Physics provides the conceptual framework for quantitative biology and biomedical sciences. Students should have a firm foundation in mathematics and physical science on which the medical science taught in medical school can be based.
 - Students should have facility with algebra and be able to develop equations from known physical and geometrical relationships. They should also be able to construct and interpret graphic representations of data and functions.
 - Students should be familiar with the constants or units of physical measurement.
 - Students should be familiar with basic Newtonian mechanics and the physical properties of the various matter states that are of biological relevance.
 - Students should have basic knowledge of the principles of electricity and magnetism, particularly circuit diagrams and wave motion.
 - Students should have firm grounding in basic statistics and probability—particularly in the testing of hypotheses.
 - Basic computer literacy is also strongly recommended because of the importance of computer science in many areas of medicine.

University of Pittsburgh

Link to website: <http://www.medadmissions.pitt.edu/>

Requirements:

- Biology, exclusive of botany and Ecology (with one full year lab or a single two credit lab);
- General or inorganic chemistry (with one full year lab or a single two credit lab);
- Organic chemistry (with one full year lab or a single two credit lab);
- Physics (with one full year lab or a single two credit lab); and
- English (We will accept courses taken outside of the English department that are deemed writing intensive by your college/university and Philosophy courses to fulfill this requirement.)

University of Rochester

Link to website: <http://www.urmc.rochester.edu/education/md/admissions/applying-to-rochester.cfm>

Requirements:

- Expository writing—one year: This may be met with English or non-science courses that involve extensive expository writing.
- One year of biology with laboratory. Biochemistry or botany will not satisfy this requirement.
- One year of physics with laboratory.
- Two years of chemistry, including either one year of organic chemistry or one semester of organic and one semester of biochemistry. Within the two-year chemistry sequence, one year of laboratory is required.
- 12 – 16 credit hours in the humanities and/or the social or behavioral sciences.

Recommended:

- Although not specifically required, courses in calculus, statistics, genetics, physiology, and biochemistry are recommended. Experience in clinical settings, research or an Honors Thesis in your major, public health, or community outreach activities also are strongly recommended.

University of South Carolina

Link to website: <http://admissions.med.sc.edu/>

Requirements:

- English composition and literature- two semesters
- Biology with laboratory- Work in general biology, general zoology, or botany is acceptable. No more than four semester hours may be botany. Two semesters
- General inorganic chemistry with laboratory- Work in qualitative analysis, quantitative analysis, or physical chemistry is acceptable. Two semesters
- General organic chemistry with laboratory- This course work should include studies of aliphatic and aromatic compounds. Two semesters

Recommended:

- Strongly Preferred- Physics, Histology and Biochemistry.

University of Southern Florida

Link to website: <http://www.hsc.usf.edu/nocms/medicine/mdadmissions>

Requirements:

- **Biological Science with laboratory: At least two semesters with lab.** This must include core concepts of the biological sciences. If a student has taken basic biological sciences through high school dual enrollment or AP courses, then they will be expected to obtain two semesters of other biological sciences at the college or university level. Strong consideration should be given to students who enroll and complete molecular biology, genetics, and/or microbiology.
- **Chemistry with laboratory: At least two semesters.** This must include core concepts of the chemical sciences. If a student has taken basic chemistry through high school dual enrollment or AP courses, then they will be expected to obtain two semesters of other chemical sciences at the college or university level. Requirement includes at least

one semester that focuses on organic chemistry principles (with lab), and at least one semester that focuses on principles of biochemistry.

- **Physics with laboratory: At least two semesters of basic principles of physics, with at least one semester at the college or university level.** If a student has taken physics with laboratory through high school dual enrollment or AP courses, then they will be expected to obtain one semester at the college or university level.
- **Mathematics: At least two semesters of mathematics, with at least one semester at the college or university level.** If a student has taken mathematics through high school dual enrollment or AP courses, then they will be expected to obtain one semester at the college or university level. Courses in statistics and /or calculus are recommended.
- **English or Expository Writing:** Writing skills are very important to the work of the physician. At least two semesters of English courses, or one course of English and one course that has as its basis a substantial experience in expository writing are required. Both semesters must be taken at the college or university level.
- **Other Recommendations:** In recognition of the increasing importance of a broad education that includes the humanities and behavioral sciences, students should have evidence of having mastered general principles in the fields of **psychology, sociology, the arts and humanities, and ethics.** While many college courses will fulfill these general educational requirements, we recommend **no less than 15 semester hours** of general coursework in these areas. Using our holistic approach to determining suitability for admission to medical school a broad undergraduate education, research, and independent scholarly activity are strongly encouraged.

University of Tennessee

Link to website: <http://www.uthsc.edu/Medicine/Admissions>

Requirements:

- Chemistry, 16 credits
 - A minimum of sixteen semester hours of chemistry is required. Eight semester hours must be in organic chemistry and another eight semester hours must be in inorganic chemistry, which may include analytical chemistry. Each of these courses must be a complete, standard, college-level course utilizing full laboratory facilities. In instances where students feel uncertain of their preparation in chemistry and wish to take additional work, biochemistry is recommended.
- Physics, 8 credits
 - Acceptable courses in physics must include laboratory credits and must adequately cover mechanics, heat, light, sound, electricity, and magnetism. Survey types of courses will not satisfy this requirement.
- Biology, 8 credits
 - Eight semester hours in modern concepts of mammalian biology, including laboratory are required. Courses in botany do not meet this requirement. Applicants, particularly non-science majors, are strongly encouraged to pursue upper level coursework in the biological sciences beyond the minimum requirement. Such courses might include biochemistry, cell biology, comparative anatomy, embryology, general genetics, histology, immunology, mammalian physiology, microbiology or related courses.
- English/Literature, 6 credits
 - Facility in the use of both oral and written English is considered highly essential to the successful study of medicine. Introductory freshman English (six semester hours) will meet the admission requirement. Students who qualify for advanced placement credit in English will not be required to take additional English courses, although such students are encouraged to do so.
- Electives, 52 credits
 - In as much as the medical curriculum is devoted largely to the biological and physical sciences, a student should acquire a broad cultural background in the pre-medical preparation. The behavioral sciences, including psychology, sociology, etc., are considered valuable. Additional dimensions are derived from higher mathematics, computer sciences, languages, literature, philosophy, history, political science, economics, etymology and statistics.

University of Texas-San Antonio

Link to website: <http://som.uthscsa.edu/Admissions/prerequisites.asp>

Requirements:

- **English:** A minimum of 6 semester hours of college English.
- **Biology:** Two years as required for science majors, one year with formal laboratory experience (minimum of 14 semester hours, or 12 hours of lecture and 2 hours of lab).

- Biochemistry: Three semester hours or 5 quarter hours of Biochemistry is required. This requirement may be used towards fulfilling the Biological Science or Chemistry requirement. The course may be taught in the Biology, Biochemistry or Chemistry department and cannot be an introductory course.
- Chemistry: One year of general (inorganic) chemistry (6 semester hours of lecture, 2 semester hours of lab) and one year of organic chemistry (6 semester hours of lecture and 2 semester hours of lab) as required for science majors including the corresponding laboratory experience in both years (minimum of 16 semester hours).
- Physics: One year as required for science majors including a full year of laboratory experience (minimum of 8 semester hours, 6 semester hours of lecture, 2 semester hours of lab).
- Statistics: A minimum of 3 semester hours of math-based statistics is required. Course content will be evaluated if not taught in a math or statistics department.

University of Texas Medical Branch-Galveston

Link to website: <http://www.utmb.edu/somstudentaffairs>

Requirements:

- English
 - 6 semester hours. Writing intensive courses taught in departments other than the English department are not acceptable.
- Biological Sciences
 - 14 semester hours (12 semester hours of lecture and 2 semester hours of formal lab)
- Mathematics
 - 3 semester hours of college Calculus or Statistics. Statistics must be taught in the Math department.
- Physics
 - 8 semester hours (6 semester hours of lecture and 2 semester hours of formal lab) as required for college science majors.
- Chemistry
 - **General Chemistry** - 8 semester hours (6 semester hours of lecture and 2 semester hours of formal lab)
 - **Organic Chemistry** - 8 semester hours (6 semester hours of lecture and 2 semester hours of formal lab)

Recommendations:

In addition to the basic core requirements for medical school, the following courses are highly recommended prior to entering medical school:

- Biochemistry/Advanced Biochemistry
- Cell Biology
- Molecular Genetics
- Anatomy and Physiology
- Immunology
- Statistics
- Developmental Biology
- Microbiology

University of Texas – Houston

Link to website: <http://med.uth.tmc.edu/administration/admissions/>

Requirements:

BIOLOGICAL SCIENCES	14 semester hours (12 semester hours of lecture & 2 semester hours of formal lab) or 21 quarter hours (18 quarter lecture hours & 3 quarter lab hours) of Biological Science are required. <i>Includes all Biological Science courses applied toward Baccalaureate degree in traditional science fields, such as General Biology, Biochemistry, Microbiology, Molecular Biology, Genetics, Ecology, Immunology, Parasitology and Anatomy & Physiology.</i>
GENERAL CHEMISTRY	8 semester hours or 12 quarter hours of General Chemistry, as required for college science majors, including the corresponding laboratory experience are required. (8 semester hours = 6 hours of lecture & 2 hours of lab; 12 quarter hours = 9 hours of lecture & 3 hours of lab). <i>Should include familiarity with analytic and volumetric techniques. Inorganic courses include General Chemistry, Physical Chemistry and Quantitative Analysis.</i>
ORGANIC	8 semester hours or 12 quarter hours of Organic Chemistry, as required for college science

CHEMISTRY	majors, including the corresponding laboratory experience are required. (8 semester hours = 6 hours of lecture & 2 hours of lab; 12 quarter hours = 9 hours of lecture & 3 hours of lab).
PHYSICS	8 semester hours or 12 quarter hours of Physics, as required for college science majors, including the corresponding laboratory experience are required. (8 semester hours = 6 hours of lecture & 2 hours of lab; 12 quarter hours = 9 hours of lecture & 3 hours of lab)Includes all physics courses applied toward a baccalaureate degree in any traditional science field.
ENGLISH	6 semester hours or 9 quarter hours of college English are required.Any course accredited by the English Department that fulfills a general education English requirement of a baccalaureate degree will be accepted. Remedial or developmental courses or “English As a Second Language” courses ARE NOT ACCEPTED.

University of Texas-Southwestern

Link to website: <http://www.utsouthwestern.edu/education/medical-school/admissions/apply/process/prerequisites.html>

Requirements:

- Biology
 - Two years of courses for science majors
 - One year must include formal laboratory experience
 - A minimum of 14 semester credit hours, eight for year one with lab and six for the remainder; or 12 lecture hours and two lab hours
 - One semester of biochemistry will be accepted toward fulfilling this requirement. UT Southwestern strongly encourages applicants to take one semester of biochemistry.
- Chemistry
 - One year of general (inorganic) chemistry
 - One year of organic chemistry for science majors, including corresponding laboratory experience in both years
 - Minimum of 16 semester credit hours (eight inorganic and eight organic)
 - Should include familiarity with analytic and volumetric techniques
- English
 - One year of college English, minimum of six semester credit hours
- Mathematics
 - One-half year of college calculus or statistics, minimum of three semester credit hours
- Physics
 - One year for science majors, including a full year of corresponding laboratory experience – minimum of eight semester credit hours, including lab

The University of Toledo

Link to website: <http://www.utoledo.edu/med/md/admissions/index.html>

Requirements (obtained at an accredited institution of higher education):

- One year biological sciences
- One year of general chemistry with labs
- One year of organic chemistry with labs
- One year of physics
- One year of mathematics
- One year of college English
- Applicants are encouraged to acquire a broad undergraduate education including humanities and social sciences

University of Virginia

Link to website: <http://www.medicine.virginia.edu/education/medical-students/admissions>

- **The University of Virginia School of Medicine no longer has required prerequisite courses.**

We have no science or humanities requirements. However, it is recommended that students consider courses in Cell Biology, Biochemistry, Human Behavior and Statistics as students find these courses to be helpful during medical school.

University of Washington

Link to website: <http://www.uwmedicine.org/admissions>

Requirements: (this list is for your information and is not exhaustive)

- **Social sciences, humanities or "human condition"** - 4 semesters
General types of courses that fulfill these requirements are: anthropology, classics, cultural studies/cross cultural studies, English literature, ethics, foreign language literature, history, music appreciation, philosophy, religion/theology, sociology, study abroad
- **Chemistry and biology** - 6 semesters
The subject matter in these courses must include college level chemistry and biology, biochemistry, molecular genetics, cell biology/cell physiology, although applicants are not required to take courses with these specific titles.
- **Physics** - 2 semesters; **OR** 1 semester, plus 1 semester of calculus or linear algebra.

Recommended:

- Ethics
- Anatomy or comparative anatomy
- Human or mammalian physiology
- Embryology

University of Wisconsin

Link to website: <http://www.med.wisc.edu/education/md/admissions/main/102>

Requirements:

- General biology (with lab), 1 semester
- Advanced biology, 1 semester
- General chemistry (with lab), 2 semesters
- Organic chemistry, 1 semester
- Biochemistry or equivalent (may be satisfied through a variety of courses that address the fundamentals of biochemistry including molecular genetics, structure and activity of proteins, and metabolism), 1 semester
- Physics (with lab), 2 semesters
- Statistics, 1 semester
- Mathematics (calculus recommended), 1 semester

Vanderbilt University

Link to website: <https://medschool.vanderbilt.edu/admissions>

Requirements:

- Biology: A minimum of 8 semester hours, including laboratory.
- General Chemistry: A minimum of 8 semester hours including laboratory.
- Organic Chemistry: A minimum of 8 semester hours including laboratory.
- English and Composition: A minimum of 6 semester hours in English literature and/or writing.
- Physics: A minimum of 8 semester hours, including laboratory.

Virginia Commonwealth University

Link to website: <http://www.medschool.vcu.edu/admissions/md/index.html>

Requirements:

- English or writing intensive courses : six credits of writing intensive courses. Other courses may be substituted upon request, please contact the admissions office.
- College mathematics: six credits of college level math/statistics

- Biological science: eight semester hours, including laboratory. This may be satisfied by general biology, general zoology, or botany. No more than half may be botany.
- General or introductory chemistry: eight semester hours, including laboratory. A portion of this requirement may be met by courses in analytical chemistry or physical chemistry.
- Organic chemistry: eight semester hours, including laboratory. Biochemistry may be substituted for half of the organic chemistry semester hours requirement. The courses should be equivalent to and acceptable for continued studies in a chemistry major.
- General or introductory physics: eight semester hours, including laboratory experience.
- Upper level science course: three credit hours. Examples: Biochemistry, Anatomy and Genetics.
- Psychology: Highly recommended
- Sociology: Highly recommended.

Virginia Tech Carilion

Link to website: <http://vtc.vt.edu/education/admissions/vtcadmissions.html>

Requirements:

- General Biology with laboratory: 2 semesters
- General Inorganic Chemistry with laboratory: 2 semesters
- Organic Chemistry with laboratory: 2 semesters
- Physics with laboratory: 2 semesters
- Mathematics: 2 semesters of calculus or 1 each of Calculus and Statistics
- English: 2 semesters or 1 semester each of English and Philosophy

Wake Forest School of Medicine

Link to website: <http://www.wakehealth.edu/School/Admissions/>

Requirements:

- Eight semester hours of vertebrate zoology or general biology
- Eight semester hours of general physics
- Eight semester hours of general chemistry
- Eight semester hours of organic chemistry
- Alternately, students may take four semester hours of organic chemistry and four semester hours of biochemistry

Washington University in St. Louis

Link to website: <http://medadmissions.wustl.edu/>

Requirements:

- A minimum of one year or equivalent advanced placement in
 - Biology
 - General or inorganic chemistry
 - Organic chemistry (one semester of Biochemistry may substitute for one semester of Orgo)
 - Physics
 - Calculus through integral and differential equations (one semester of Statistics may substitute for one semester of calculus)

Wayne State University

Link to website: <http://www.med.wayne.edu/admissions>

Requirements:

- Inorganic Chemistry with labs, 2 semesters
- Biology/Zoology with labs, 2 semesters
- College English, 2 semesters
- Organic Chemistry with labs, 2 semesters
- Physics with labs, 2 semesters

Recommendations for entering class of 2016, required for 2017 and beyond:

- Biochemistry, 1 semester
- Ethics (preferably Medical Ethics), 1 semester
- Statistics, 1 semester

Weill Cornell Medical College

Link to website: <http://www.med.cornell.edu/education/admissions>

Requirements:

- Basic sciences: two semesters, or their equivalent, in **biology, chemistry, and physics**. These will typically be comprehensive introductory courses with laboratory. In biology, coursework will typically include molecular biology, cell biology, and genetics.
- Organic chemistry: We recommend two semesters of organic chemistry, but we accept one semester of organic chemistry, with lab, and one semester of other advanced biology or chemistry coursework. Examples include biochemistry, physical chemistry, analytic chemistry, and molecular genetics.
- Writing-intensive courses: two semesters of writing-intensive courses, one in the humanities or social sciences (e.g., history, philosophy, anthropology), and one focusing on English-language literature.
- Laboratory coursework: In some instances, actual laboratory work experience may substitute for laboratory courses.
- Integrated science courses that include biology, chemistry, physics and mathematical aspects of life sciences, may be substituted for coursework in the three basic science areas on a credit-hour-by-hour basis. These courses should be rigorous, and competency in basic science content must be corroborated by achievement in other areas such as advanced science courses, research, and/or MCAT scores.

Recommendations

- Mathematics: calculus and statistics are recommended

West Virginia University

Link to website: <http://www.hsc.wvu.edu/som/students/>

Requirements:

- English - 6 hrs (can be one writing course and one English course)
- Social or Behavioral Science - 9 hrs.
- Biology or Zoology with labs - 8 hrs.
- General Chemistry with labs - 8 hrs.
- Organic Chemistry with labs - 8 hrs (one semester of Biochemistry may be substituted)
- Physics with labs - 8 hrs.

Recommendations:

- Biochemistry - 3 hrs.
- Cell and Molecular Biology (if not taking it in combination with Organic Chemistry) - 3 hrs.
- Physiology - 3 hrs.

Western Michigan University

Link to website: <http://med.wmich.edu/admissions>

- Biology (two semesters), including content in molecular and cellular biology, fundamentals of genetics and a laboratory experience.
- English (two semesters), preferably including content in technical writing skills; one semester may be a discipline-specific intensive writing course.
- Inorganic Chemistry (two semesters), including a laboratory experience.
- Organic chemistry (two semesters), including a laboratory experience or Organic chemistry (one semester) including a laboratory experience, plus Biochemistry (one semester).
- Physics (two semesters), including a laboratory experience.

Recommended Coursework: While not required, we encourage students to seek out coursework in Psychology, Behavioral Sciences, Social Sciences, Biostatistics, Biochemistry, Genetics and Humanities.

Wright State University

Link to website: <http://www.med.wright.edu/admiss>

Requirements:

- One year of college biology with labs
- One year of college general chemistry with labs
- One year of college organic chemistry with labs
- One year of college physics with labs
- One year of college mathematics (through trigonometry; calculus preferred)
- One year of college English

Yale University School of Medicine

Link to website: <http://medicine.yale.edu/education/admissions>

Requirements:

- Satisfactory completion of the following courses including laboratory work:
 - General Biology or Zoology with lab (2 semesters)
 - General Chemistry with lab (2 semesters)
 - Organic Chemistry with lab (1 semester)
 - Biochemistry (1 semester) (lab recommended, but not required)
 - General Physics with lab (2 semesters)
- Acceptable courses in these subjects usually extend over one year and are given six to eight semester hours of academic credit.