

Pre-Medical & Human Medicine

Specializing your Biology degree at Iowa State University

Have Questions About the Biology Major?
Contact us at 515-294-1064 or biology@iastate.edu
Or visit Student Services in 103 Bessey Hall

Medical professionals provide health care services to humans and include a wide variety of specialties: dentists, doctors, optometrists, podiatrists, genetic counselors, physical therapists, occupational therapists, physician assistants, and more. They develop skills in microbiology, pathology, physiology, pharmacology, genetics, and surgery. Many medical professionals practice medicine in a clinical setting, but training in this area can also open up careers in animal research, public health, food safety, regulatory medicine, and education.

Becoming a medical professional usually requires specialized training and licensure, or post-graduate education. There are many medical schools and other allied health programs in the United States, and each has somewhat different admissions requirements. We recommend students investigate various paths in human medicine with their advisor and with the Pre-Health academic advising team in Catt Hall (<https://pre-health.las.iastate.edu>). Students should identify programs to apply for as early as possible in order to determine exactly what preparation is required and tailor a program of study accordingly.

Although professional programs in human medicine do not have a strong preference of undergraduate majors for acceptance, most major in a biological science in order to meet the necessary pre-requisites for application. In addition to the core courses of the Biology Program, students should expect to include anatomy (BIOL 350 or BIOL 351) and physiology (BIOL 335) in their plan. Students could also choose to take BIOL 255 plus lab, and BIOL 256 plus lab, but while these courses satisfy admissions requirements for many professional schools, they do not count towards biology degree requirements. Most students pursuing human medicine will take the advanced course sequences for supporting science requirements (i.e., chemistry, math, physics), and are strongly encouraged to incorporate teaching experiences, job shadows, internships, and research in their program of study to create a competitive portfolio for applications. Breadth of study and foreign language skills are often considered positive features in applicants for medical programs as well.

Suggested Advanced Biology Courses for Human Medicine Students

Course #	Course Name	Credits	Course #	Course Name	Credits
BIOL 322	Intro Bioinformatics	3	BIOL 423	Developmental Biology	3
BIOL 328	Molec Cell of Human Disease	3	BIOL 423L	Developmental Biology Lab	1
BIOL 335	Human & Animal Physiology	3	BIOL 434	Endocrinology	3
BIOL 335L	Human & Animal Phys Lab	1	BIOL 436	Neurobiology	3
BIOL 336	Ecol & Evol Animal Physiology	3	BIOL 459	Mammalogy	2
BIOL 344	Human Reproduction	3	BIOL 459L	Mammalogy Lab	1
BIOL 350	Comprehensive Human Anatomy	4	BIOL 490	Independent Study	1
BIOL 351	Comparative Chordate Anatomy	5	BIOL 491	Undergraduate Teaching Exp	1-2
BIOL 352	Vertebrate Histology	4	BIOL 494	Biology Internship	1-3
BIOL 353	Introductory Parasitology	3	BIOL 499	Undergraduate Research	1-3
BIOL 354	Animal Behavior	3	ANTHR 307	Biological Anthropology	3
BIOL 354L	Animal Behavior Lab	1	ANTHR 319	Skeletal Biology	3
BIOL 365	Vertebrate Biology	4	ANTHR 424	Forensic Anthropology	3
BIOL 402	Introduction to Pathology	3			
BIOL 421X	Biology of Aging	3			

continued on next page...

Course #	Course Name	Credits	Course #	Course Name	Credits
BBMB 405	Biochemistry II	3	KIN 355	Biomechanics	3
BBMB 411	Techniques in Biochem Research	4	KIN 363	Basic Electrocardiography	2
BBMB 420	Mammalian Biochemistry	3	KIN 472	Neural Basis of Movement	3
BBMB 440	Microbial Phys, Div., & Gen. Lab	4	MICRO 302	Biology of Microorganisms	3
B M S 448	Human Gross Anatomy	4	MICRO 302L	Microbiology Lab	1
ENT 374	Insects and our Health	3	MICRO 310	Medical Microbiology	3
ENT 374L	Insects and our Health Laboratory	1	MICRO 310L	Medical Microbiology Lab	1
FS HN 360	Adv. Human Nutrition & Metab.	3	MICRO 320	Molec. and Cellular Bacteriology	4
FS HN 361	Nutrition & Health Assessment	2	MICRO 402	Microbial Genetics	3
FS HN 364	Nutr. & Pv'tn of Chronic Disease	3	MICRO 408	Virology	3
FS HN 367	Medical Terminology	1	MICRO 475	Immunology	3
H S 350	Human Diseases	3	MICRO 475L	Immunology Lab	1
GEN 340	Human Genetics	3	PSYCH 310	Brain and Behavior	3
GEN 409	Molecular Genetics	3	PSYCH 315	Drugs and Behavior	3
GEN 410	Analytical Genetics	3			

Suggested Supporting Science Courses

Pre-medical students should plan to take a full year of general chemistry (CHEM 177 + CHEM 177L, and CHEM 178 + CHEM 178L), a full year of organic chemistry (CHEM 331 + CHEM 331L, and CHEM 332 + CHEM 332L), and strongly consider taking more advanced biochemistry courses (i.e., BBMB 420, or BBMB 404 and BBMB 405). Pre-medical students should also consider taking a full year of physics (PHYS 111 and PHYS 112) and in some cases are required to. Many professional schools in human medicine require one semester of calculus, and occasionally two. Social sciences, such as PSYCH 101 and SOC 134, are also recommended, especially for students planning to take the MCAT.

Resources for Human Medicine Students

Association of American Medical Colleges: <https://students-residents.aamc.org>

List of schools with MD programs: <https://students-residents.aamc.org/applying-medical-school/article/participating-medical-schools-deadlines/>

American Association of Colleges of Pharmacy: <https://www.aacp.org/resources/student-center>

List of schools with PA programs: <http://directory.paeonline.org>

List of schools with dental programs: <https://www.asdanet.org/index/get-into-dental-school/before-you-apply/u-s-dental-schools>

American Physical Therapy Association (plus school lists): <http://www.apta.org/ProspectiveStudents/>

List of Occupational Therapy programs: <http://www.aota.org/Education-Careers/Find-School.aspx>

Information about standardized tests (these may be required in applying to medical schools):

DAT: <http://www.ada.org/en/education-careers/dental-admission-test>

MCAT: <https://students-residents.aamc.org/applying-medical-school/taking-mcat-exam/>

OAT: <http://www.ada.org/en/oat>

GRE: <http://www.ets.org/gre/>

PCAT: <https://www.pearsonassessments.com/graduate-admissions/pcat/about.html>

List of pre-medical clubs at ISU: <https://www.stuorg.iastate.edu/orgtype/10>

Pre-medical and allied health advising at ISU: <https://pre-health.las.iastate.edu>

(102 Catt Hall; prehealth@iastate.edu)