

# Pre-Medical & Human Medicine

Have Questions About the Biology Major?  
Visit Student Services in 103 Bessey Hall  
or call 515-294-1064

Specializing your Biology degree at Iowa State University

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

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

List of schools with dental programs: <http://www.asdanet.org/us-dental-schools.aspx>

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: <http://pcatweb.info>

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

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

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