UNIVERSITY OF SOUTHERN INDIANA
Chemistry and Biochemistry

Pre-Medicine

Chemistry Major

There is no specific major to prepare for medical school. Admission requirements for medical school vary for different schools. Students must take the MCAT, which covers information from the required courses. The following are the minimum required courses for the application to most medical schools: CHEM 261, CHEM 262, CHEM 353, CHEM 354, CHEM 431, CHEM 432, BIOL 141, BIOL 334, PHYS 205 and PHYS 206, PSY 201, SOC 121, MATH 230. The following courses are a typical course of study for a chemistry major interested in admission to medical, osteopathic, or podiatric training:

Fall Year 1	
General Chemistry I (CHEM 261)	4
Principles of Biol (BIOL 141)	4
Calculus I (MATH 230)	4
Rhetoric & Composition I (ENG 101)	3
1st Year Experience (UNIV 101)	1
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Spring Year 1	
General Chemistry II (CHEM 262)	4
Calculus II (MATH 235)	4
Intro to Public Speaking (CMST 101/107)	3
Rhetoric & Composition II (ENG 201)	3
Principles of Sociology (SOC 121) (***Core***)	3
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Fall Year 2	
Organic Chemistry I (CHEM 353)	4
Zoology (BIOL 152)	3
Intermediate Physics I (PHYS 205)	5
Intro to Psychology (PSY 201) (***Core***)	3
Chemistry Seminar (CHEM 218)	1
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Spring Year 2	
Organic Chemistry II (CHEM 354)	4
Cell Biology (BIOL 334)	3
Intermediate Physics II (PHYS 206)	5
Quantitative Analysis (CHEM 321) (**or Summer)**	4
	16

Fall Year 3	
Biochemistry I (CHEM 431)	4
Chemistry Seminar II (CHEM 318) ***(or** year 4)*	1
Animal Physiology (BIOL 333)	4
Core Elective	3
Concepts in Wellness and Fitness (KIN 192)	1
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Spring Year 3	
Biochemistry II (CHEM 432)	4
Chemistry Seminar III (CHEM 418) ***(or** year 4)*	1
Intro to Research (CHEM 499)*	1
Genetics (BIOL 382)	4
Core Elective **x 2**	6
	16

MCAT should be taken during April/May of Junior Year

Fall Year 4	
Physical Chemistry I (CHEM 461)	4
Instrumental Analysis (CHEM 421)	4
Intro to Research (CHEM 499)*	1
Core Electives	3
Elective	3
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Spring Year 4	
Inorganic Chemistry (CHEM 441)	4
CHEM Elective	4
Core Elective	3
Elective	3
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This is a **suggested** sequence of courses. There is some flexibility in this schedule. Courses taken in first year depend on math placement. In order to graduate, you must fulfill 39 credit hours at 300/400 level. *Research courses can be taken in any semester, two are required for the degree

DEPARTMENT FACULTY RESEARCH INTERESTS

Dr. Brian Bohrer (Ph.D. Analytical Chemistry, Indiana University)

Environmental analysis of water samples aiming to detect the presence of agricultural and pharmaceutical pollutants using chromatography and mass spectrometry instrumentation

Dr. Shelly Blunt (Ph.D. Organic Chemistry, University of Iowa)

Synthesis of quinoline alkaloids as breast cancer target agents and nucleosides as HIV/AIDS target agents and asymmetric epoxidations to form chiral drug targets

Dr. Jeannie Collins (Ph.D. Biochemistry, University of Southern Mississippi)

Cytoskeletal proteins involved in motility, structural support, organelle transport and intracellular communication, DNA replication of both slime molds and plants

Dr. Priya Hewavitharanage (Ph.D. Photochemical Sciences, Bowling Green State University)

Synthesis of fluorescent molecules for biological applications such as photodynamic therapy for the treatment of cancer

Dr. Mark Krahling (Ph.D. Analytical Chemistry, University of Wisconsin-Madison)

Elemental analysis using atomic spectroscopy, solid phase extraction & gas chromatography–mass spectrometry, and electrospray ionization mass spectrometry

Dr. Jacob Lutter (Ph.D. Inorganic Chemistry, University of Michigan)

Synthesis of metallacrowns that sensitize emission from trivalent lanthanide ion guests introduced into the macrocyclic core as potential imaging agents, energy upconvertors, and other applications

Dr. Evan Millam (Ph.D. Physical Chemistry, University of Minnesota)

Electronic spectroscopy, ab initio computational chemistry, first principles determination of vibrationally resolved molecular electronic spectra, transition state calculations, calorimetry

Dr. Ken Walsh (Ph.D. Organic Chemistry, University of Bristol)

Synthesis of carbohydrates and analogs, organocatalysis and organic synthesis, adaption of modern synthetic techniques for the teaching laboratory