CHEMISTRY - MEDICINAL CHEMISTRY (BACHELOR OF SCIENCE)

The concentration in Medicinal/Pharmaceutical Chemistry is designed for motivated students seeking careers in medicine, pharmacy, veterinary medicine, or medically related research. We specifically designed this program to meet the rigorous requirements for students interested in continuing their education in fields of study that will prepare them for these fast-paced, integrated environments. This program will help students create a competitive application portfolio. The requirements for the Bachelor of Science degree in Medicinal Chemistry are:

Course	Title	Credits
Jax MIX General Education Curriculum		**41**

Course	Title	Credits
Chemistry Requirements		
CY 105 & CY 107	General Chemistry I and General Chemistry Laboratory I	4
CY 106 & CY 108	General Chemistry II and General Chemistry Laboratory II	4
CY 231	Organic Chemistry I	4
CY 232	Organic Chemistry II	4
CY 341	Physical Chemistry I (WI)	4
CY 362	Biochemistry I (WI)	4
Medicinal Chemistry Concentration		
CY 363	Biochemistry II	4
Select a minimum of 12 hours of Chemistry electives from the following:		12
CY 321	Quantitative Analysis	
CY 411	Intermediate Inorganic Chemistry	
CY 413	Pharmacology	
CY 414	Medical Biochemistry	
CY 416	Forensic Chemistry	
CY 417	Macro-Molecular Modeling	
CY 418	Enzymology	
CY 419	Advanced Materials and Technology	
CY 420	Chemistry of Cannabis	
CY 421	Instrumental Analysis	
CY 435	Advanced Topics in Chemistry	
CY 450	Neurochemistry	
CY 490	Internship [1]	
CY 497	Chemistry Research [1]	
Support Courses		
BY 101 & BY 103	Introductory Biology I and Introductory Biology Lab I	4
BY 102 & BY 104	Introductory Biology II and Introductory Biology Lab II	4
BY 322	Genetics (WI)	4
MS 113	Precalculus Trigonometry (or higher excluding MS 204)	3
PHS 201	College Physics I	3
PHS 202	College Physics II	3
PHS 203	College Physics Laboratory Techniques I	1
PHS 204	College Physics Laboratory Techniques II	1
Biology Electives		
Select a minimum of 9 hours of Biology 300+ electives from the following:		9
BY 320	Comparative Vertebrate Anatomy	
BY 323	Microbiology	
BY 340	Discovering Genomics and Bioinformatics	
BY 373	Cell Biology	
BY 402	Medical Microbiology	
BY 403	Immunology	
BY 413	Animal Reproduction and Development	
BY 417	Medical Parasitology	
BY 434	Animal Systems Physiology	
BY 450	Molecular Biology	
BY 463	General Toxicology	
BY 473	Advanced Cell Biology	
BY 478	Endocrinology	
BY 480	Advanced Topics in Biology I	
Total Hours		**72**

[1] This course may be taken up to three times for a maximum of three credit hours.

In addition to courses noted below, candidates for graduation must successfully complete all JSU Academic Regulations. **More information about Jax MIX requirements (https://catalog.jsu.edu/undergraduate/jax-mix-requirements/) and Alabama Transfers equivalents (https://catalog.jsu.edu/undergraduate/alabama-transfers-equivalents/) can be found in their respective section of the catalog.**

Freshman

Fall		Hours
Jax MIX Communication: EH Composition sequence		3
CY 105 & CY 107	General Chemistry I and General Chemistry Laboratory I (Jax MIX Inquiry)	4
MS 113	Precalculus Trigonometry (or higher excluding MS 204 - Jax MIX Communication)	3
BY 101 & BY 103	Introductory Biology I and Introductory Biology Lab I	4
SSC 101	First Year Experience	0
	Hours	**14**

Spring

Jax MIX Communication: EH Composition sequence		3
CY 106 & CY 108	General Chemistry II and General Chemistry Laboratory II (Jax MIX Inquiry)	4
BY 102 & BY 104	Introductory Biology II and Introductory Biology Lab II	4
General Elective		3
	Hours	**14**

Sophomore

Fall

Jax MIX Experience: History [1]		3
BY 322	Genetics (WI)	4
PHS 201 & PHS 203	College Physics I and College Physics Laboratory Techniques I	4
CY 231	Organic Chemistry I	4
	Hours	**15**

Spring		
Jax MIX Expression: Literature [1]		3
Biology Elective [2]		3
PHS 202 & PHS 204	College Physics II and College Physics Laboratory Techniques II	4
CY 232	Organic Chemistry II	4
	Hours	**14**
Junior		
Fall		
Jax MIX Experience: Social/Behavioral Science		3
CY 362	Biochemistry I (WI)	4
CY 300+ Elective [3]		3
General Elective		5
	Hours	**15**
Spring		
EH 141	Speech (Jax MIX Communication)	3
Jax MIX Experience: Social/Behavioral Science		3
CY 363	Biochemistry II	4
CY 300+ Elective [3]		3
General Elective		4
	Hours	**17**
Senior		
Fall		
Jax MIX Expression (Literature if sequence) [1]		3
Biology Elective [2]		3
CY 341	Physical Chemistry I (WI)	4
CY 300+ Elective [3]		3
General Elective		3
	Hours	**16**
Spring		
Jax MIX Expression: Fine Arts		3
Jax MIX Experience (History if sequence) [1]		3
Biology Elective [2]		3
CY 300+ Elective [3]		3
General Elective		3
	Hours	**15**
	Total Hours	**120**

1. A sequence in either literature or history is required with a minimum of three credit hours in both history and literature.
2. Select up to 9 hours of Biology electives from the following: BY 320 Comparative Vertebrate Anatomy (4), BY 323 Microbiology (4), BY 340 Discovering Genomics and Bioinformatics (3), BY 373 Cell Biology (4), BY 402 Medical Microbiology (4), BY 403 Immunology (3) , BY 413 Animal Reproduction and Development (4), BY 417 Medical Parasitology (3), BY 434 Animal Systems Physiology (4), BY 450 Molecular Biology (4), BY 463 General Toxicology (0-4), BY 473 Advanced Cell Biology (4), BY 478 Endocrinology (3), or BY 480 Advanced Topics in Biology I (1).
3. Select 12 hours of Chemistry electives from the following: CY 321 Quantitative Analysis (4), CY 411 Intermediate Inorganic Chemistry (4), CY 413 Pharmacology (3), CY 414 Medical Biochemistry (3), CY 416 Forensic Chemistry (3), CY 417 Macro-Molecular Modeling (3), CY 418 Enzymology (3), CY 419 Advanced Materials and Technology (3), CY 420 Chemistry of Cannabis (3), CY 421 Instrumental Analysis (4), CY 435 Advanced Topics in Chemistry (3), CY 450 Neurochemistry (3), or select up to 3 semester hours of CY 490 Internship (1) or CY 497 Chemistry Research (1).