

**Four Year Graduation Plan – Courses & Critical Benchmarks:**

The following is a sample course of study. It is the student's responsibility to ensure that all program requirements are met. This guide is not a substitute for academic advisement. For more information see the University Catalog at [umkc.edu/catalog](http://umkc.edu/catalog).

Your path to graduation may vary based on factors such as college credit you earned while in high school, transfer work from other institutions of higher learning, and placement in Mathematics. You are responsible for checking prerequisites to any courses. Critical Courses and minimum recommended grades (as noted below) provide feedback regarding major fit and help indicate likelihood of successful completion of chosen academic program and degree.

**Please Note:** Students must have successfully passed (with a "C-" or better) Pre-calculus or a combination of a College Algebra and Trigonometry for college credit to be prepared for major math sequence. **Students who do not place into MATH 210 Calculus I or MATH 216 Calculus for Biological Sciences may have to complete preparatory math coursework, adding 3 – 8 hours to the total hours required for the degree.**

<b>First Math Course:</b>	MATH 210 Calculus I OR MATH 216 Calculus for Bio Sciences OR STAT 235 Elementary Statistics	<b>Foreign Language Requirement:</b>	None	<b>General Elective Hours:</b>	16
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Critical Course	Course Subject, Number, & Title and Academic Plan Benchmarks <b>Bold = UMKC General Education Core requirement</b> *Prerequisite May Be Required ** Co-Requisite Enrollment Required	Min. Rec. Grade	Credit Hours	Notes
<b>Fall Semester Year 1: 16 hours</b>				
◆	BIOLOGY 108 General Biology I (Focus B) + BIOLOGY 108L Lab OR BIOLOGY 109 General Biology II (Focus B) + BIOLOGY 109L Lab	B	4	Enrollment in BIOLOGY 108 and/or 109 is based on ACT scores. Transfer students should consult with an advisor before enrolling.  A grade of B (3.00) or higher in Biology, Chemistry, & Mathematics courses is a realistic benchmark for students to successfully complete a biology degree. A grade of C- or higher required to satisfy major requirements.
◆	**CHEM 211 General Chemistry I (Focus Elective) + CHEM 211L Lab	B	5	
	BIOLOGY 115 First Year Seminar (strongly recommended, not required)		1	
	**ANCHOR I Reasoning & Values <a href="#">Click for options</a>		3	
	**DISC 100 Reasoning & Values (Speech & Writing) <a href="#">Click for options</a>		3	
Complete at least 16 term credit hours Earn a minimum 2.00 University of Missouri (UM) cumulative GPA Earn a minimum 2.00 UM Biology GPA				
<b>Spring Semester Year 1: 15 hours</b>				
◆	BIOLOGY 108 General Biology I + BIOLOGY 108L Lab OR BIOLOGY 109 General Biology II + BIOLOGY 109L Lab	B	4	Register for <a href="#">UMKC Roo Career Network</a> .  Students who are planning to complete their degree in 4-years should aim to average at least 30 credit hours per academic year (Fall, Spring, Summer) to stay on track.
◆	**CHEM 212R General Chemistry II (Focus Elective) + Lab	B	5	
	**ANCHOR II Culture & Diversity <a href="#">Click for options</a>		3	
	**DISC 200 Culture & Diversity (Speech & Writing) <a href="#">Click for options</a>		3	
Complete at least 15 term credit hours Maintain minimum 2.00 UM cumulative GPA Maintain minimum 2.00 UM Biology GPA				
<b>Summer Semester Year 1: 0 hours</b>				
Complete ANCHOR I & DISC 100 Complete BIOLOGY 108: General Biology I + BIOLOGY 108L: General Biology I Laboratory Complete BIOLOGY 109: General Biology II + BIOLOGY 109L: General Biology II Laboratory Complete CHEM 211: General Chemistry I + CHEM 211L: Experimental General Chemistry I Maintain minimum 2.00 UM cumulative GPA and UM Biology GPA Complete 30 total hours toward degree				Students may use the summer to ensure completion of 30 hours per academic year or to lighten fall and spring course loads.

Fall Semester Year 2: 15-16 hours				
◆	BIOLOGY 202 Cell Biology OR BIOLOGY 206 Genetics	B	3	Take the <a href="#">RooWriter Assessment</a> after completing DISC 200. Must complete prior to enrolling in a Writing Intensive (WI or WL) course.  1 Enrollment restricted. Must take <a href="#">ALEKS Math Placement Exam</a> or show prerequisite requirement has been met prior to enrolling.  2 HISTORY 101, 102, or POL-SCI 210 meet both Focus C & <a href="#">Missouri Constitution</a> Requirements.
◆	**CHEM 321 Organic Chemistry + CHEM 321L Lab	B	4	
	*MATH 120 Precalculus <sup>1</sup> OR *MATH 210 Calculus I <sup>1</sup> OR *MATH 216 Calculus for Biological Sciences <sup>1</sup>	B	4-5	
	LS 201 Healthcare Professions Seminar (recommended, not required)		1	
	<b>Focus C Human Actions, Values, &amp; Ethics<sup>2</sup></b> (PSYCH 210 recommended as preparation for MCAT) <a href="#">Click for options</a>		3	
Complete at least 15 term credit hours Maintain minimum 2.00 UM cumulative GPA Maintain minimum 2.00 UM Biology GPA				
Spring Semester Year 2: 13-14 hours				
◆	BIOLOGY 202 Cell Biology OR BIOLOGY 206 Genetics	B	3	Students planning to continue their education in professional or graduate programs should meet with their advisor to discuss application timelines and requirements.  Students considering medicine as a career should plan to take courses in statistics, psychology, & sociology to prepare them for the Medical College Admission Test (MCAT).  Apply this term to the BS Biology – Biomedical Emphasis.
◆	**CHEM 322R Organic Chemistry + CHEM 322L Lab	B	4	
	MATH 210 Calculus I OR MATH 216 Calculus for Biological Sciences OR MATH 220 Calculus II OR MATH 226 BioMath II Statistics & Modeling OR STAT 235 Elementary Statistics	B	3-4	
	General Elective (SOCIO 101 or 121 recommended as preparation for MCAT)		3	
Complete at least 13 term credit hours Maintain minimum 2.00 UM cumulative GPA Maintain minimum 2.00 UM Biology GPA				
Summer Semester Year 2: 0 hours				
Complete ANCHOR II & DISC 200 Complete CHEM 321 Organic Chemistry I + CHEM 321L Lab Complete RooWriter Assessment Maintain minimum 2.00 UM cumulative GPA Maintain minimum 2.00 UM Biology GPA Complete 60 total hours toward degree				Students may use the summer to ensure completion of 30 hours per academic year or to lighten fall and spring course loads.
Fall Semester Year 3: 17-19 hours				
	LS-BIOC 441 Biochemistry	B	3	<a href="#">Apply for graduation</a> & complete your Final Degree Audit for Major and Minor (if applicable).  3BIOLOGY 201 prepares students for application to internships, graduate programs, or employment. Skills assessment, resume development, opportunity identification, application, interview, and letters of evaluation are discussed.
	LS-MCRB 313 Microbiology	B	3	
	LS-MCRB 313WL Lab in Microbiology	B	3	
	PHYSICS 210 General Physics I OR PHYSICS 240 Physics for Scientists & Engineers I	B	4-5	
	MATH 220 Calculus II OR MATH 226 BioMath II Statistics & Modeling OR STAT 235 Elementary Statistics OR General Elective	B	3-4	
	BIOLOGY 201 Preparing for Careers in Biology <sup>3</sup> (recommended)		1	
Complete at least 17 term credit hours Maintain minimum 2.00 UM cumulative GPA Maintain minimum 2.00 UM Biology GPA				

Spring Semester Year 3: 16-17 hours				
	LS-BIOC 430 Molecular Biology & Genetic Engineering	B	3	Students should complete appropriate admission exams for professional health or graduate program applications, e.g. MCAT, DAT, GRE.
	BIOLOGY 2XX/3XX/4XX Lab Elective <a href="#">Click for options</a>	B	2	
	PHYSICS 220 General Physics II OR PHYSICS 250 Physics for Scientists & Engineers II	B	4-5	
	**ANCHOR III Community & Civic Engagement <a href="#">Click for options</a>		3	
	**DISC 300 Community & Civic Engagement <a href="#">Click for options</a>		3	
	LS 202 Preparing for Careers in Healthcare (recommended, not required)		1	
Complete at least 16 term credit hours Maintain minimum 2.00 UM cumulative GPA Maintain minimum 2.00 UM Biology GPA				
Summer Semester Year 3: 0 hours				
Complete ANCHOR III & DISC 300 Maintain minimum 2.00 UM cumulative GPA Maintain minimum 2.00 UM Biology GPA Complete 90 total hours toward degree				Students may use the summer to ensure completion of 30 hours per academic year or to lighten fall or spring course loads.
Fall Semester Year 4: 14-15 hours				
	BIOLOGY 409 Developmental Biology	B	3	<a href="#">Take the ETS Proficiency Profile (EPP) &amp; Biology Major Field Exams (MFE)</a>  Students planning to take BIOLOGY 498WI will complete the MFE as part of that course.
	LS-PHYS 316 Principles of Physiology	B	3	
	LS-MCRB 431 Virology OR General Elective if planning to take Immunology below	B	3	
	BIOLOGY 3XX/4XX Elective	B	2-3	
	Focus A Arts & Humanities <a href="#">Click for options</a>		3	
Complete at least 14 term credit hours Maintain minimum 2.00 UM cumulative GPA Maintain minimum 2.00 UM Biology GPA				
Spring Semester Year 4: 14-15 hours				
	Biology Synthesis Requirement BIOLOGY 498WI <sup>3</sup> Critical Analysis of Biological Issues OR LIFE-SCI 497 Special Topics <a href="#">Click for options</a> OR LIFE-SCI 499 Undergraduate Research <a href="#">Click for options</a>	B	3	<sup>3</sup> BIOLOGY 498WI includes the Biology Major Field Exam (MFE) as part of the course.
	LS-MCRB 435 Immunology OR General Elective if Virology completed above	B	3	
	General Elective ( <a href="#">Missouri Constitution Requirement</a> <sup>2</sup> if not met above with Focus C)		3	
	General Elective		3	
	General Elective (only if needed to reach 120 min. hours)		2-3	
Complete Major Field Exam for Biology Complete ETS Proficiency Profile Maintain minimum 2.00 UM cumulative GPA Maintain minimum 2.00 UM Biology GPA				

Graduation Requirements Summary					
<b>Total Hours</b>	<b>Total Hours at UMKC</b>	<b>Upper Lvl Hrs in Major at UMKC</b>	<b>Upper (300 / 400) Level Hours</b>	<b>Major GPA</b>	<b>UMKC GPA</b>
120 minimum	30 minimum	21 minimum	36 minimum	2.00 minimum	2.00 minimum

## Other Information

A minimum of 30 hours must be earned at the University of Missouri-Kansas City, regardless of the number and level of hours earned at another institution. Undergraduate degree-seeking students are required to earn credit in at least 36 hours of coursework numbered 300 and above at UMKC. In the case of transfer credit, the coursework must be numbered as junior-senior level work by the transferring institution. Community-college transfer coursework cannot count towards the 36-hour requirement.

### Non-course Requirements

RooWriter Assessment	_____
Biology Major Field Exam	_____
ETS Proficiency Profile	_____

## Policy

The University reserves the right to make changes in courses and course schedules without notice. Students are expected to maintain a quality of achievement significantly above minimum UMKC standards for degree work. Individual student progress will be monitored throughout the program. Satisfactory progress is required of all students for retention in the program. Students are expected to maintain academic standards, perform satisfactorily in courses, refrain from academic dishonesty, comply with the established University requirements, and refrain from unethical or unprofessional behavior or behaviors that obstruct the training process or threaten the welfare of the student or others. Other circumstances involving student behavior will be addressed by the faculty on an individual basis.

## Advising Contact Information

School of Biological Sciences Academic Support  
816-235-2580  
[sbs-undergrad@umkc.edu](mailto:sbs-undergrad@umkc.edu)  
[sbs.umkc.edu/undergraduate\\_support.cfm](http://sbs.umkc.edu/undergraduate_support.cfm)

## Career Opportunities

UMKC Career Services – [career.umkc.edu](http://career.umkc.edu) | 816-235-1636 | 2<sup>nd</sup> Floor, Atterbury Student Success Center.  
O\*Net OnLine – [OnetOnline.org](http://OnetOnline.org) Learn about careers related to your major, income potential, and more.