

**Four-Year Graduation Plan - Courses and 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. **All incoming freshmen must develop an academic plan (which maps out all courses needed to graduate within your intended major/degree). Your academic advisor is available to meet with you and create your specific plan.**

*Your path to graduation may vary slightly 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.*

First Math	MATH 210: Calculus I , MATH 216: Biomath I, or STAT 235: Statistics	Foreign Language Requirement	No	Free Elective Hours	Minimum of 15
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Critical Course or Benchmark	Course Subject, Number, and Title and Academic Plan Benchmarks Bold = UMKC General Education Core Requirement *Prerequisite May Be Required **Co-Requisite Enrollment Required	Min Recom Grade	Credit Hours (CH)	Notes
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**Fall Semester Year 1: 15-17 hours**

	<b>**Anchor I: Reasoning and Values</b> <a href="#">Click for options</a>		3	BIOLOGY 102 is a non-majors biology course but may be recommended for students needing additional background in biology. Students should plan for summer enrollment to remain on track.  A grade of B or higher in biology, chemistry, and math courses is a realistic benchmark for students to successfully complete a biology degree.  <a href="#">ALEKS Math Placement Exam</a> or college credit with a grade of C- or higher in prerequisite required prior to enrollment in MATH 110 and MATH 120.  Students must earn a grade of C- or higher for courses to satisfy majors requirements.
	<b>**DISC 100: Reasoning and Values</b> (Speech and Writing)		3	
	BIOLOGY 102: Biology And Living <b>OR</b> BIOLOGY 108: General Biology I <b>OR</b> BIOLOGY 109: General Biology II	B B B	3 3 3	
	BIOLOGY 108L: General Biology I Laboratory <b>OR</b> BIOLOGY 109L: General Biology II Laboratory	B B	1 1	
	MATH 110: College Algebra <b>OR</b> MATH 120: Precalculus <b>OR</b> MATH 210: Calculus I <b>OR</b> CHEM 211: General Chemistry I <b>AND</b> CHEM 211L: Experimental General Chemistry I	B B B B B	3 5 4 4 1	
	BIOLOGY 115: First Year Seminar		1	
	Complete 12 term hours minimum toward degree Earn 2.250 minimum UM GPA Earn 2.250 minimum UM Biology GPA			

**Spring Semester Year 1: 15-17 hours**

	<b>**Anchor II: Culture and Diversity</b> <a href="#">Click for options</a>		3	<a href="#">Register for UMKC Roo Career Network</a>  Students who are planning to complete their degree in 4-years should aim to complete a minimum of 30 credit hours per academic year (Fall, Spring, Summer).
	<b>**DISC 200: Culture and Diversity</b> (Speech and Writing)		3	
	BIOLOGY 108: General Biology I <b>OR</b> BIOLOGY 109: General Biology II	B B	3 3	
	BIOLOGY 108L: General Biology I Laboratory <b>OR</b> BIOLOGY 109L: General Biology II Laboratory	B B	1 1	
	CHEM 211: General Chemistry I <b>AND</b> CHEM 211L: Experimental General Chemistry I <b>OR</b>	B B	4 1	

# UMKC Major Map: Bachelor of Science in Biology (Cellular and Molecular Basis of Health and Disease)

## First-Time College Students

Catalog Year: 2014 - 2015

▼	CHEM 212R: General Chemistry II AND CHEM 212LR: Experimental General Chemistry II	B B	4 1
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◆	Complete Anchor I and DISC100 Complete 12 term hours minimum toward degree Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA
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### Summer Semester Year 1: 0 hours if all previous courses completed

				May use summer semester to ensure completion of 30 hours per academic year or to lighten fall and spring course loads. Note: not all classes are offered in the summer. Consult with your advisor for recommendations.
◆	Complete BIOLOGY 108: General Biology I Complete BIOLOGY 108L: General Biology I Laboratory Complete BIOLOGY 109: General Biology II Complete BIOLOGY 109L: General Biology II Laboratory Complete CHEM 211: General Chemistry I Complete CHEM 211L: Experimental General Chemistry I Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA Complete 30 total hours toward degree			

### Fall Semester Year 2: 15 hours

◆	BIOLOGY 202: Cell Biology <b>OR</b> BIOLOGY 206: Genetics	B B	3 3	HISTORY 101, 102, or POL-SCI 210 recommended for <b>Focus C and Constitution Requirement</b> .  Students considering medicine as a career should plan to take coursework in statistics, psychology, and sociology to prepare them for the Medical College Admission Test (MCAT).
	CHEM 321: Organic Chemistry I <b>AND</b> CHEM 321L: Organic Chemistry Laboratory I	B B	3 1	
	MATH 210: Calculus I <b>OR</b> MATH 216: Biomath I: Calculus and Modeling	B B	4 4	
	<b>Focus Elective (A or C)</b> <a href="#">Click for options</a>		3	
	Elective		3	
◆	Complete 12 term hours minimum toward degree Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA			

### Spring Semester Year 2: 17-18 hours

◆	BIOLOGY 202: Cell Biology <b>OR</b> BIOLOGY 206 Genetics	B B	3 3	Students planning to continue their education in professional or graduate programs should meet with their adviser to discuss application timeline and requirements.  Students interested in health care should consider applying to the following: · BS Biology Biomedical Sciences Emphasis Program · Medical Scholars-UMKC School of Medicine · Reserved Admission-UMKC School of Dentistry
	CHEM 322R: Organic Chemistry II <b>AND</b> CHEM 320L: Experimental Organic Chemistry	B B	4 1	
	MATH 220: Calculus II <b>OR</b> MATH 226: Biomath II: Statistics and Modeling <b>OR</b> STAT 235: Elementary Statistics	B B B	4 4 3	
	<b>Focus Elective (A or C)</b> <a href="#">Click for options</a>		3	
	Elective		3	
◆	Complete 12 term hours minimum toward degree Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA			

### Summer Semester Year 2: 0 hours if all previous courses completed

◆	Complete Anchor II and DISC 200 Complete CHEM 321: Organic Chemistry I Complete CHEM 321L: Organic Chemistry Laboratory I Complete 60 total hours toward degree				May use summer semester to ensure completion of 30 hours per academic year or to lighten fall and spring course loads. Note: not all classes are offered in the summer. Consult with your advisor for recommendations.
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Fall Semester Year 3: 15-17 hours

	LS-BIOC 341: Basic Biochemistry	B	3	File an Application for Graduation.  Students must complete <a href="#">RooWriter Writing Assessment</a> prior to enrolling in a Writing Intensive Course.  Students must complete two (2) biology lab courses, one of which must be Writing Intensive (WI).
	BIOLOGY 409: Developmental Biology	B	3	
	Biology Elective Lab	B	2-3	
	PHYSICS 210: General Physics I OR PHYSICS 240: Physics For Scientists and Engineers I	B B	4 5	
	Elective		3	
◆	Complete RooWriter Assessment Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA			

Spring Semester Year 3: 13-15 hours

	<b>**Anchor III: Community &amp; Civic Engagement</b> <a href="#">Click for options</a>		3	
	<b>**DISC 300: Community &amp; Civic Engagement</b> (Speech and Writing)		3	
	LS-BIOC 430: Molecular Biology And Genetic Engineering	B	3	
	BIOLOGY Elective Lab	B	2-3	
	PHYSICS 220: General Physics II <b>OR</b> PHYSICS 250: Physics For Scientists and Engineers II	B B	4 5	
◆	Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA			


Summer Semester Year 3: 0 hours if previous courses completed

◆	Complete 90 total hours toward degree			

Fall Semester Year 4: 15 hours

	LS-MCRB 313: Microbiology	B	3	Students must take either LS-MCRB 431: Virology (fall) or LS-MCRB 435: Immunology (spring).
	LS-MCRB 313WL: Laboratory In Microbiology	B	3	
	LS-PHYS 316: Principles of Physiology	B	3	
	LS-MCRB 431: Virology or Elective	B	3	
	Elective		3	
◆	Complete Anchor III and DISC 300 Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA			

Spring Semester Year 4: 12 hours

	BIOLOGY 498WI: Critical Analysis Of Biological Issues <b>OR</b> LIFE-SCI 497: Special Topics <b>OR</b> LIFE-SCI 499: Undergraduate Research	B B B	3 3 3
	LS-MCRB 435: Immunology <b>OR</b> Elective	B	3
	BIOLOGY Elective - Upper Level	B	3
	Elective		3
	Complete Major Field Exam for Biology Complete ETS Proficiency Profile Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA		

**Graduation Requirements Summary**

Total Hours (120 minimum)	Total Hours at UMKC (30 hours min)	Major GPA	UMKC GPA
120	30	2.00	2.00

**Other Information**

**Non-course requirements**

RooWriter Assessment

**Met**

The School reserves the right to make changes in courses, degree requirements 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 and teacher education timetables and 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  
[http://sbs.umkc.edu/undergraduate\\_support.cfm](http://sbs.umkc.edu/undergraduate_support.cfm)

**Career Opportunities**

UMKC Career Services Resources: <http://www.career.umkc.edu/?q=node/87>  
 O\*Net OnLine: <http://www.onetonline.org/find/>