Major Map: BS Biology

Emphasis: Bioinformatics
Catalog year: 2013 - 2014

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 of checking prerequisites to any courses. Critical courses and benchmark indicate academic requirements for each term of enrollment.

First Mathematics: Calculus I (Math 210), Biomath I (Math 216) or Statistics (Stat 235) ***Free Elective Hours: Minimum of 15***

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	Hours	Minimum Required Grade	Notes
	Fall Semester Year 1: 15 hours			
	****Anchor I: Reasoning and Values** - Click for Options	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. Math Entrance Exam 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.
	****Discourse I: DISC 100 - Reasoning and Values** (Speech and Writing)	3		
◆	BIOLOGY 102: Biology And Living **OR** BIOLOGY 108: General Biology I **OR** BIOLOGY 109: General Biology II	3 3 3	B B B	
	BIOLOGY 108L: General Biology I Laboratory **OR** BIOLOGY 109L: General Biology II Laboratory	1 1	B B	
◆	MATH 110: College Algebra **OR** MATH 120: Precalculus **OR** MATH 210: Calculus I **OR** CHEM 211: General Chemistry I AND CHEM 211L: Experimental General Chemistry I	3 5 4 4 1	B B B B B	
	BIOLOGY 115: First Year Seminar	1		
◆	Complete 12 term hours minimum toward degree Earn 2.250 minimum UM grade GPA Earn 2.250 minimum UM Biology GPA			
	Spring Semester Year 1: 15- 17 hours			
◆	BIOLOGY 108: General Biology I **OR** BIOLOGY 109: General Biology II	3 3	B B	Register for UMKC Career Network (hyperlinked) 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).
	BIOLOGY 108L: General Biology I Laboratory **OR** BIOLOGY 109L: General Biology II Laboratory	1 1	B B	
◆	CHEM 211: General Chemistry I AND CHEM 211L: Experimental General Chemistry I **OR** CHEM 212R: General Chemistry II AND CHEM 212LR: Experimental General Chemistry II	4 1 4 1	B B B B	
	MATH 210: Calculus I OR MATH 216: Biomath I: Calculus and Modeling	4 4	B B	
	COMP-SCI 101: Problem Solving And Programming I	3	B	

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◆	Complete Anchor I and Discourse I 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 1			
				May use summer semester to ensure completion of 30 hours per academic year or to lighten fall and spring course loads.
◆	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 Minimum score of 15 on MATH 210: Calculus I or STAT 235: Elementary Statistics Entrance Exam 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			
	****Anchor II: Culture and Diversity - Click for Options**	3		HISTORY 1100, 1101 or POLS-SCI 210 recommended for Focus C and Constitution Requirement. 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).
	****Discourse II: DISC 200 - Culture and Diversity** (Speech and Writing)	3		
◆	BIOLOGY 202: Cell Biology **OR** BIOLOGY 206 Genetics	3 3	B B	
	CHEM 321: Organic Chemistry I AND CHEM 321L: Organic Chemistry Laboratory I	3 1	B B	
	MATH 226: Biomath II: Statistics and Modeling **OR** STAT 235: Elementary Statistics	4 3	B B	
◆	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: ___hours			
◆	BIOLOGY 202: Cell Biology **OR** BIOLOGY 206 Genetics	3 3	B B	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 AND CHEM 322L: Organic Chemistry Laboratory II	3 1	B B	
	MATH 220: Calculus II	4	B	
	Focus Elective (A or C) - Click for Options	3		
	COMP-SCI 191: Discrete Structures I	3	B	
◆	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: ___ hours			

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				May use summer semester to ensure completion of 30 hours per academic year or to lighten fall and spring course loads.
◆	Complete Anchor II and Discourse II Complete CHEM 321: Organic Chemistry I Complete CHEM 321L: Organic Chemistry Laboratory I Complete 60 total hours toward degree			
	Fall Semester Year 3: ___ hours			
	LS-BIOC 341: Basic Biochemistry	3	B	File an Application for Graduation. Students must complete Roo Writer Assessment prior to enrolling in a Writing Intensive Course. Students must complete two (2) biology lab courses (minimum of 5 hours), one of which must be Writing Intensive (WL).
	BIOLOGY 405: Introduction to Evolution	3	B	
	COMP-SCI 201R: Problem Solving and Programming II	3	B	
	PHYSICS 210: General Physics I **OR** PHYSICS 240: Physics For Scientists and Engineers I	4 5	B B	
	Focus Elective (A or C) - Click for Options	3		
◆	Complete Roo Writer Assessment Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA			
	Spring Semester Year 3: ___hours			
	****Anchor III: Community & Civic Engagement - Click for Options**	3		
	****Discourse III: DISC 300 - Culture and Diversity** (Speech and Writing)	3		
	LS-BIOC 430: Molecular Biology And Genetic Engineering	3	B	
	LS-BIOC 360L: Laboratory In Biochemistry And Molecular Biology **OR** LS-BIOC 360WL: Laboratory In Biochemistry And Molecular Biology	3 3	B B	
	PHYSICS 220: General Physics II **OR** PHYSICS 250: Physics For Scientists and Engineers II	4 5	B B	
	Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA			
	Summer Semester Year 3: ___hours			
	Complete 90 total hours toward degree			
	Fall Semester Year 4:___ hours			
	BIOLOGY Elective	3	B	
	BIOLOGY Elective	3	B	
	BIOLOGY Lab Elective	3	B	
	Elective	3		
	Complete Anchor III and Discourse III Earn 2.250 minimum cumulative UM GPA Earn 2.250 minimum cumulative UM Biology GPA			
	Spring Semester Year 4: ___ hours			
	BIOLOGY 498WI: Critical Analysis Of Biological Issues **OR** LIFE-SCI 497: Special Topics **OR** LIFE-SCI 499: Undergraduate Research	3 3 3	B B B	
	LIFE-SCI 425: Bioinformatics	3	B	
	BIOLOGY Elective	3	B	
	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	

Non-course requirements	**Met**
Written English Proficiency Test (WEPT)	☐

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.

Graduation Requirements Summary:

Total Hours (120 minimum)	Totals Hrs at UMKC (30 hours minimum)	Major GPA (2.25 minimum)	UMKC GPA

All students completing an undergraduate education degree must meet the following conditions in order to graduate and be recommended for graduation or certification:

- [list of requirements as stated in the catalog pertaining to minimum GPA, capstone coursework, additional licensure exams, etc.]