### 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.

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.**

<table>
<thead>
<tr>
<th>First Math Course:</th>
<th>Foreign Language Requirement:</th>
<th>General Elective Hours:</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 210 Calculus I OR MATH 216 Calculus for Bio Sciences OR STAT 235 Elementary Statistics</td>
<td>None</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Critical Course</th>
<th>Course Subject, Number, &amp; Title and Academic Plan Benchmarks</th>
<th>Credit Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOLOGY 108 General Biology I (Focus B) + BIOLOGY 108L Lab OR BIOLOGY 109 General Biology II (Focus B) + BIOLOGY 109L Lab</td>
<td>B 4</td>
<td>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, &amp; 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.</td>
<td></td>
</tr>
<tr>
<td><strong>CHEM 211 General Chemistry I (Focus Elective) + CHEM 211L Lab</strong></td>
<td>B 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOLOGY 115 First Year Seminar (strongly recommended, not required)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ANCHOR I Reasoning &amp; Values</strong> [Click for options]</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DISC 100 Reasoning &amp; Values</strong> (Speech &amp; Writing) [Click for options]</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fall Semester Year 1: 16 hours**

**Spring Semester Year 1: 15 hours**

**Summer Semester Year 1: 0 hours**

**Complete at least 16 term credit hours**

**Complete at least 15 term credit hours**

**Complete at least 16 term credit hours**

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**

**CHEM 321 Organic Chemistry + CHEM 321L Lab**

**MATH 120 Precalculus OR MATH 210 Calculus I OR MATH 216 Calculus for Biological Sciences**

**Focus A Arts & Humanities** [Click for options]

LIFE-SCI 201 Healthcare Professions Seminar (recommended)

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Complete at least 15 term credit hours.
Maintain minimum 2.00 UM cumulative GPA
Maintain minimum 2.00 UM Biology GPA

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## Spring Semester Year 2: 13-14 hours

**BIOLOGY 202 Cell Biology OR BIOLOGY 206 Genetics**

**CHEM 322R Organic Chemistry + 322L Lab**

**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**

**Focus C Human Actions, Values, & Ethics** (HISTORY 101, 102, or POL-SCI 210 Recommended) [Click for options]

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Complete at least 13 term credit hours
Maintain minimum 2.00 UM cumulative GPA
Maintain minimum 2.00 UM Biology GPA

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## 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 and UM Biology GPA
Complete 60 total hours toward degree

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## Fall Semester Year 3: 16-18 hours

**LS-BIOC 441 Biochemistry**

**BIOLOGY 409 Developmental Biology**

**BIOLOGY 300/400 Level Elective**

**PHYSICS 210 General Physics I OR PHYSICS 240 Physics for Scientists & Engineers I**

**MATH 220 Calculus II OR MATH 226 BioMath II Statistics & Modeling OR STAT 235 Elementary Statistics OR General Elective**

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Complete at least 16 term credit hours
Maintain minimum 2.00 UM cumulative GPA
Maintain minimum 2.00 UM Biology GPA

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## Spring Semester Year 3: 16-17 hours

**BIOLOGY 328 Histology**

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1. Enrollment restricted. Must take ALEKS Math Placement Exam or show prerequisite requirement has been met prior to enrolling.
2. BIOLOGY 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.
3. HISTORY 101, 102, or POL-SCI 210 meet both Focus C & Missouri Constitution Requirements.

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Apply for graduation & complete your Final Degree Audit for Major and Minor (if applicable).

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Students may use the summer to ensure completion of 30 hours per academic year or to lighten fall or spring course loads.

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UMKC Last Updated: 8/14/18
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOLOGY 328WL</td>
<td>Laboratory in Histology &amp; Cellular Ultrastructure</td>
<td>B 3</td>
</tr>
<tr>
<td>PHYSICS 220</td>
<td>General Physics II OR PHYSICS 250 Physics For Scientists &amp; Engineers II</td>
<td>B 4-5</td>
</tr>
<tr>
<td><strong>ANCHOR III Community &amp; Civic Engagement</strong> Click for options</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>DISC 300 Community &amp; Civic Engagement</strong> Click for options</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LIFE-SCI 202 Preparing for Careers in Healthcare</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Students should complete appropriate admission exams for professional health or graduate program applications, e.g. MCAT, DAT, GRE.

*LIFE-SCI 202 Prepares students for application to professional health programs. School selection, application, personal statement, interviewing, and letters of evaluation are discussed.

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: 15-17 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS-MCRB 313</td>
<td>Microbiology</td>
<td>B 3</td>
</tr>
<tr>
<td>LS-PHYS 316</td>
<td>Principles of Physiology</td>
<td>B 3</td>
</tr>
<tr>
<td>LS-ANATO 218</td>
<td>Introductory Anatomy + 218L Lab</td>
<td>B 5</td>
</tr>
<tr>
<td>General Elective (LS-PHYS 217L Human Physiology Laboratory is recommended)</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>General Elective</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Complete at least 15 term credit hours
Maintain minimum 2.00 UM cumulative GPA
Maintain minimum 2.00 UM Biology GPA

**Spring Semester Year 4: 12-15 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology Synthesis Requirement BIOLOGY 498WI Critical Analysis of Biological Issues OR LIFE-SCI 497 Special Topics Click for options OR LIFE-SCI 499 Undergraduate Research Click for options</td>
<td>B 3</td>
<td></td>
</tr>
<tr>
<td>LS-BIOC 430</td>
<td>Molecular Biology &amp; Genetic Engineering OR LS-MCRB 435 Immunology</td>
<td>B 3</td>
</tr>
<tr>
<td>General Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>General Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>General Elective (only if needed to reach 120 min. hours)</td>
<td>0-3</td>
<td></td>
</tr>
</tbody>
</table>

3 BIOLOGY 498WI includes the Biology Major Field Exam (MFE) as part of the course.

Complete Major Field Exam for Biology
Complete ETS Proficiency Profile
Maintain minimum 2.00 UM cumulative GPA
Maintain minimum 2.00 UM Biology GPA
Complete a minimum of 120 total hours toward degree

**Graduation Requirements Summary**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Total Hours</td>
<td>120</td>
</tr>
<tr>
<td>Total Hours at UMKC</td>
<td>30 minimum</td>
</tr>
<tr>
<td>Upper Lvl Hrs in Major at UMKC</td>
<td>21 minimum</td>
</tr>
<tr>
<td>Total Upper Level (300/400) hours</td>
<td>36 minimum</td>
</tr>
<tr>
<td>Major GPA</td>
<td>2.00 minimum</td>
</tr>
<tr>
<td>UMKC GPA</td>
<td>2.00 minimum</td>
</tr>
</tbody>
</table>
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
sbs.umkc.edu/undergraduate_support.cfm

Career Opportunities

UMKC Career Services – career.umkc.edu | 816-235-1636 | 2nd Floor, Atterbury Student Success Center.
O*Net OnLine – OnetOnline.org Learn about careers related to your major, income potential, and more.