UMKC Major Map: Bachelor of Science in Biology (Bioinformatics)
First-Time College Students
Catalog Year: 2014 - 2015

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.

<table>
<thead>
<tr>
<th>Critical Course or Benchmark</th>
<th>Course Subject, Number, and Title and Academic Plan Benchmarks</th>
<th>Min Recom Grade</th>
<th>Credit Hours (CH)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Math</td>
<td>MATH 210: Calculus I, MATH 216: Biomath I, or STAT 235: Statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign Language Requirement</td>
<td>No</td>
<td></td>
<td></td>
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<tr>
<td>Free Elective Hours</td>
<td>Minimum of 15</td>
<td></td>
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</tbody>
</table>

Fall Semester Year 1: 15 hours

**Anchor I: Reasoning and Values [Click for options]**

**DISC 100: Reasoning and Values (Speech and Writing)**

| BIOLOGY 102: Biology And Living OR | B | 3 |
| BIOLOGY 108: General Biology I OR | B | 3 |
| BIOLOGY 109: General Biology II   | B | 3 |
| BIOLOGY 108L: General Biology I Laboratory OR | B | 1 |
| BIOLOGY 109L: General Biology II Laboratory | B | 1 |

| MATH 110: College Algebra OR | B | 3 |
| MATH 120: Precalculus OR    | B | 5 |
| MATH 210: Calculus I OR     | B | 4 |
| CHEM 211: General Chemistry I AND | B | 4 |
| CHEM 211L: Experimental General Chemistry I | B | 1 |
| BIOLOGY 115: First Year Seminar | | |

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

| BIOLOGY 108: General Biology I OR | B | 3 |
| BIOLOGY 109: General Biology II   | B | 3 |
| BIOLOGY 108L: General Biology I Laboratory OR | B | 1 |
| BIOLOGY 109L: General Biology II Laboratory | B | 1 |
| CHEM 211: General Chemistry I AND | B | 4 |
| CHEM 211L: Experimental General Chemistry I OR | B | 1 |
| CHEM 212R: General Chemistry II AND | B | 4 |
| CHEM 212LR: Experimental General Chemistry II | B | 1 |

Register for UMKC Roo Career Network

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).
**UMKC Major Map: Bachelor of Science in Biology (Bioinformatics)**

**Catalog Year: 2014 - 2015**

<table>
<thead>
<tr>
<th>First-Time College Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 210: Calculus I <strong>OR</strong></td>
</tr>
<tr>
<td>MATH 216: Biomath I: Calculus and Modeling</td>
</tr>
<tr>
<td>COMP-SCI 101: Problem Solving and Programming I</td>
</tr>
</tbody>
</table>

**Complete Anchor I and DISC 100**
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: 0 hours if all previous courses completed**

**Fall Semester Year 2: 15 hours**

**Anchor II: Culture and Diversity** [Click for options]

**DISC 200: Culture and Diversity** (Speech and Writing)

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

CHEM 321: Organic Chemistry I **AND**
CHEM 321L: Organic Chemistry Laboratory I

MATH 226: Biomath II: Statistics and Modeling **OR**
STAT 235: Elementary Statistics

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 hours**

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

CHEM 322R: Organic Chemistry II **AND**
CHEM 322L: Organic Chemistry Laboratory II

MATH 220: Calculus II

**Focus Elective** (A or C) [Click for options]

COMP-SCI 191: Discrete Structures I

Complete 12 term hours minimum toward degree
Earn 2.250 minimum cumulative UM GPA
Earn 2.250 minimum cumulative UM Biology GPA

May use summer semester to ensure completion of 30 hours per academic year or to lighten fall and spring course loads.

May use summer semester to ensure completion of 30 hours per academic year or to lighten fall and spring course loads.

HISTORY 101, 102 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).

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
**UMKC Major Map: Bachelor of Science in Biology (Bioinformatics)**

**First-Time College Students**

**Catalog Year: 2014 - 2015**

## Summer Semester Year 2: 0 hours if all previous coursework 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

## Fall Semester Year 3: 16-17 hours
- LS-BIOC 341: Basic Biochemistry B 3
- BIOLOGY 405: Introduction to Evolution B 3
- COMP-SCI 201R: Problem Solving and Programming II B 3
- PHYSICS 210: General Physics I OR PHYSICS 240: Physics For Scientists and Engineers I B 4 B 5
- **Focus Elective (A or C) Click for options** 3

## Spring Semester Year 3: 16-17 hours
- **Anchor III: Community & Civic Engagement** Click for options 3
- **DISC 300: Community & Civic Engagement** (Speech and Writing) 3
- LS-BIOC 430: Molecular Biology and Genetic Engineering B 3
- LS-BIOC 360L: Laboratory In Biochemistry & Molecular Biology OR LS-BIOC 360WL: Laboratory In Biochemistry & Molecular Biology B 3 B 3
- PHYSICS 220: General Physics II OR PHYSICS 250: Physics For Scientists and Engineers II B 4 B 5

## Summer Semester Year 3: 0 hours if all previous coursework completed

## Fall Semester Year 4: 12 hours
- BIOLOGY Elective B 3
- BIOLOGY Elective B 3
- BIOLOGY Lab Elective B 3
- Elective B 3

## Spring Semester Year 4: 12 hours
- Complete Anchor III and DISC 300
- Earn 2.250 minimum cumulative UM GPA
- Earn 2.250 minimum cumulative UM Biology GPA

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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.**

- File an Application for Graduation.
- Students must complete RooWriter Writing 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).
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<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOLOGY 498WI: Critical Analysis Of Biological Issues OR LIFE-SCI 497: Special Topics OR LIFE-SCI 499: Undergraduate Research</td>
<td>B 3</td>
</tr>
<tr>
<td>LIFE-SCI 425: Bioinformatics</td>
<td>B 3</td>
</tr>
<tr>
<td>BIOLOGY Elective</td>
<td>B 3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

- 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

<table>
<thead>
<tr>
<th>Total Hours (120 minimum)</th>
<th>Total Hours at UMKC (30 hours min)</th>
<th>Major GPA</th>
<th>UMKC GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>30</td>
<td>2.00</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Other Information

- Non-course requirements: Met
  - RooWriter Assessment

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

Career Opportunities

UMKC Career Services Resources: [http://www.career.umkc.edu/?q=node/87](http://www.career.umkc.edu/?q=node/87)