MINOR IN BIOCHEMISTRY AND CELL BIOLOGY

Program Learning Outcomes for the Minor in Biochemistry and Cell Biology

Upon completing the minor in Biochemistry and Cell Biology, students will be able to:

1. Demonstrate knowledge of biology with particular emphasis on biochemistry and cell biology.
2. Demonstrate effective oral and written communication skills, including the ability to interpret and communicate the results of biological research.
3. Demonstrate the critical thinking and analysis skills necessary to evaluate published and proposed research in the biological sciences.

Requirements for the Minor in Biochemistry and Cell Biology

Students pursuing the minor in Biochemistry and Cell Biology must complete:

- A minimum of 18 courses (44 credit hours) to satisfy minor requirements.

The minor in Biochemistry and Cell Biology is intended for those with an interest in the life sciences but who may be majoring in other areas. This minor incorporates many of the life science core courses required for the health professions.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions may be formally applied and entered into Degree Works by the minor’s Official Certifier ([https://registrar.rice.edu/facstaff/degreeworks/officialcertifier]). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Biochemistry and Cell Biology</td>
<td>44</td>
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</table>

### Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 126</td>
<td>GENERAL PHYSICS II (WITH LAB)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 123</td>
<td>and GENERAL CHEMISTRY LABORATORY I</td>
<td>4</td>
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### Core Requirements

1. **CHEM 122** and GENERAL CHEMISTRY II and ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY DISCUSSION
2. **CHEM 211** and ORGANIC CHEMISTRY I
3. **CHEM 212** and ORGANIC CHEMISTRY II
4. **CHEM 215** and ORGANIC CHEMISTRY DISCUSSION II
5. **BIOC 201** and INTRODUCTORY BIOLOGY
6. **BIOC 301** and BIOCHEMISTRY I
7. **BIOC 341** and CELL BIOLOGY

### Lab Course Requirement

- **BIOC 211** and INTERMEDIATE EXPERIMENTAL BIOSCIENCES

### Lecture Course Requirement

Select 1 lecture course from BIOC course offerings at the 300-level or above

### Total Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credit Hours</th>
</tr>
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<tr>
<td></td>
<td></td>
<td>44</td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

1. **Permissible Substitutions:** MATH 105 or MATH 111 and MATH 112 may be substituted for MATH 101; MATH 106 may be substituted for MATH 102; CHEM 151 and CHEM 153 may be substituted for CHEM 121 and CHEM 123; CHEM 152 and CHEM 154 may be substituted for CHEM 122 and CHEM 124; CHEM 320 may be substituted for CHEM 212; CHEM 365 may be substituted for CHEM 215; PHYS 101 and PHYS 103 or PHYS 111 may be substituted for PHYS 125; PHYS 102 and PHYS 104 or PHYS 112 may be substituted for PHYS 126; BIOC 212 may be substituted for BIOC 211.

2. Lecture courses are noted in Rice’s Course Catalog with a course type of “lecture”. These courses do not include courses listed with a course type of “lecture/laboratory”.

### Policies for the Minor in Biochemistry and Cell Biology

#### Advising

Rice University policies are governed primarily by the General Announcements; students are encouraged to look there first for academic policies. Advising information specific to the Department of Biosciences can be found at the department website by clicking on the tab for Undergraduate Studies: [http://biosciences.rice.edu/](http://biosciences.rice.edu/).

#### Program Restrictions and Exclusions

Students pursuing the minor in Biochemistry and Cell Biology should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates ([ga.rice.edu/undergraduate-students/academic-opportunities/majors-minors-certificates](http://ga.rice.edu/undergraduate-students/academic-opportunities/majors-minors-certificates)), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.
- Students pursuing the major in Biological Sciences may not declare the minor in Biochemistry and Cell Biology.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit ([ga.rice.edu/undergraduate-students/academic-policies-procedures/transfer-credit](http://ga.rice.edu/undergraduate-students/academic-policies-procedures/transfer-credit)). Some departments and programs have additional
restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**
Students pursuing the minor in Biochemistry and Cell Biology should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

**Additional Information**
For additional information, please see the BioSciences website: http://biosciences.rice.edu/.

**Opportunities for the Minor in Biochemistry and Cell Biology**

**Academic Honors**
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (ga.rice.edu/undergraduate-students/honors-distinctions/university) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (ga.rice.edu/undergraduate-students/honors-distinctions/university). Some departments have department-specific Honors awards or designations.

**Research in the BioSciences**
Research is highly encouraged for all biosciences majors, and there are many opportunities for independent research at Rice. Information about research for credit and research internships specific to the Department of BioSciences can be found at the department website, by clicking on the link for Undergraduate Studies, at: http://biosciences.rice.edu/.

**Additional Information**
For additional information, please see the BioSciences website: http://biosciences.rice.edu/.