# BACHELOR OF SCIENCE IN BIOCHEMISTRY - GENERAL

The Bachelor of Science in Biochemistry degree program consists of a combination of requirements and electives that ensure a strong foundation in the chemical and biological sciences while providing the flexibility to tailor the curriculum to satisfy specific interests or career goals. This program may be of interest to students who plan careers in research, teaching, or in a life/health science profession (medicine, pharmacy, dentistry). The judicious use of free electives also enables the student to achieve considerable knowledge of other disciplines at Georgia Tech, such as chemical and biomolecular engineering, bioinformatics (computing), biomedical engineering, and biology. The biochemistry curriculum enables majors who are interested in medical, dental, or law school to meet admission requirements of these schools. Successful completion of the Pre-Health Science Option is noted on the student’s transcript.

Chemistry Website ([http://www.chemistry.gatech.edu](http://www.chemistry.gatech.edu))

### Code | Title | Credit Hours
--- | --- | ---
**Welness**
APPH 1040 | Scientific Foundations of Health | 2

or APPH 10 The Science of Physical Activity and Health

**Core A - Essential Skills**
ENGL 1101 | English Composition I | 3

ENGL 1102 | English Composition II | 3

MATH 1552 | Integral Calculus | 4

**Core B - Institutional Options**
CS 1301 | Introduction to Computing | 3

or CS 1315 | Introduction to Media Computation | 3

or CS 1371 | Computing for Engineers | 3

**Core C - Humanities**

**Core D - Science, Math, & Technology**
PHYS 2211 | Introductory Physics I | 4

PHYS 2212 | Introductory Physics II | 4

MATH 1551 | Differential Calculus | 2

MATH 1553 | Introduction to Linear Algebra | 2

**Core E - Social Sciences**
Select one of the following: | 3

HIST 2111 | The United States to 1877 | 3

HIST 2112 | The United States since 1877 | 3

INTA 1200 | American Government in Comparative Perspective | 3

POL 1101 | Government of the United States | 3

PUBP 3000 | American Constitutional Issues | 3

Any SS ([http://www.catalog.gatech.edu/academics/undergraduate/core-curriculum/core-area-e/](http://www.catalog.gatech.edu/academics/undergraduate/core-curriculum/core-area-e/)) | 9

**Core F - Courses Related to Major**
CHEM 1211K | Chemical Principles I | 4

CHEM 1212K | Chemical Principles II | 4

CHEM 2380 | Synthesis Laboratory I | 2

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<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>CHEM 2214</td>
<td>Quantitative Chemical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 2311</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 2312</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 2331</td>
<td>Organic and Bioorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 3211</td>
<td>Analytical Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 3371</td>
<td>Organic Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 3411</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 4511</td>
<td>Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 4512</td>
<td>Biochemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 4521</td>
<td>Biophysical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 4581</td>
<td>Biochemistry Laboratory I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 4582</td>
<td>Biochemistry Laboratory II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 4601</td>
<td>Chemistry Seminar</td>
<td>2</td>
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**Biology Electives**
BIOS 2600 | Genetics | 3 |

BIOS 3450 | Cell and Molecular Biology | 3 |

Select one of the following: | 3 |

BIOS 3380 | Microbiology | 3 |

BIOS 3450 | Cell and Molecular Biology | 3 |

BIOS 4015 | Cancer Biology and Biotechnology | 3 |

BIOS 4340 | Medical Microbiology | 3 |

BIOS 4401 | Experimental Design and Statistical Methods in Biological Sciences | 3 |

BIOS 4418 | Microbial Physiology | 3 |

BIOS 4464 | Developmental Biology | 3 |

BIOS 4570 | Immunology | 3 |

BIOS 4607 | Molecular Biology of Microbes: Disease, Nature, and Biotechnology | 3 |

BIOS 4668 | Eukaryotic Molecular Genetics | 3 |

CHEM 4765 | Drug Design, Development, and Delivery |

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<tr>
<td>MATH 2551</td>
<td>Multivariable Calculus</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 1107</td>
<td>Biological Principles</td>
<td>4</td>
</tr>
</tbody>
</table>

& 1107L and Biological Principles Laboratory |

Total Credit Hours: 122

1 VIP courses may be used only as free electives.

2 Courses may be applied toward completion of a minor.

3 MATH 1554 ([http://catalog.gatech.edu/search/?P=MATH%201554/](http://catalog.gatech.edu/search/?P=MATH%201554/)) or MATH 1564 ([http://catalog.gatech.edu/search/?P=MATH%201564/](http://catalog.gatech.edu/search/?P=MATH%201564/)) may be used in place of MATH 1553 ([http://catalog.gatech.edu/search/?P=MATH%201553/](http://catalog.gatech.edu/search/?P=MATH%201553/)).

### International Plan

The BS in Chemistry (International Plan) and BS in Biochemistry (International Plan) are offered to undergraduate students seeking to understand their majors in a global perspective. Students in this program must demonstrate proficiency in a foreign language; complete coursework in a country/regional elective, international relations, and global economics; and participate in a study or research abroad experience (usually in the junior year). If a student is pursuing a research abroad experience, they are required to complete a supervised research experience with a faculty member in chemistry or...
biochemistry at the host institution. Upon successful completion of
degree requirements for the International Plan, a 'International Plan' 
designator is indicated on the diploma. If interested in participating in the 
International Plan as part of the BS in Chemistry or BS in Biochemistry, 
students should visit: www.internationalplan.gatech.edu (http://
www.internationalplan.gatech.edu).

Chemistry Website (http://www.chemistry.gatech.edu)

Research Option

The BS in Chemistry (Research Option) and BS in Biochemistry (Research Option) are offered for students who wish to participate in a research project under the supervision of one of the fifty members of faculty and adjunct faculty in the School. Participants in the Research Option learn how to address a research problem from experiment design and execution to interpretation of results. There is an expectation that undergraduates who contribute to completed studies will be co-authors on submissions to high-quality scholarly journals. Research projects are available in the traditional areas of chemistry (analytical, biological, inorganic, organic, and physical chemistry) as well as highly interdisciplinary research areas, such as nanochemistry, polymer and materials chemistry, environmental chemistry and sensors, medicinal chemistry, molecular biophysics, and computational chemistry.

To pursue the Research Option in the School of Chemistry and Biochemistry, students should obtain a research project with a faculty member in the department and apply online via www.undergradresearch.gatech.edu (http://www.undergradresearch.gatech.edu). Successful completion of the Research Option requires the following:

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<tr>
<td>CHEM 4698/4699</td>
<td>Undergraduate Research Assistantship</td>
<td>9</td>
</tr>
<tr>
<td>LMC 4701</td>
<td>Undergraduate Research Proposal Writing (complete during the first or second semester of research)</td>
<td>1</td>
</tr>
<tr>
<td>LMC 4702</td>
<td>Undergraduate Research Thesis Writing (take during the term in which students complete their thesis)</td>
<td>1</td>
</tr>
</tbody>
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Total Credit Hours 11

1 supervised research with faculty over three or more semesters
2 approval of proposal on project by a committee of two or more faculty
3 submission of an approved thesis

Successful completion of the Research Option is noted on the student’s transcript. Students completing this option often pursue graduate studies in the chemical or biological sciences or research careers in industrial or governmental laboratories.

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