BIOCHEMISTRY/ MOLECULAR BIOLOGY, COMPREHENSIVE MAJOR

Liberal Arts (Code 090-001)

University Requirements

Graduation Requirements for Baccalaureate Degree

Credit Requirements

Minimum total for graduation 1
Upper division credits (courses numbered 300 and higher)
Liberal Education Core
Academic Concentrations

Grade Point Requirements 2

Total
Resident
Major
Minor
Certificate

University Residency Requirements 3

Minimum total
Senior year
Major, Standard, upper division in residence
Major, Comprehensive, upper division in residence
Certificate

Procedures Required for Graduation

Obtain admission to the degree program and/or the College offering it.

Apply for graduation on CampS.

1 Certain programs exceed this minimum.
2 See special requirements in each College.
3 See special requirements for the College of Education and Human Sciences.

Liberal Education Core

The University of Wisconsin-Eau Claire measures learning outcomes to ensure that its graduates have achieved a liberal education and prepared themselves to contribute to a complex society. Upon graduation, each undergraduate will have met the four learning goals of our liberal education core and the 11 learning outcomes they comprise.

Code Title Credits

LIBERAL EDUCATION CORE REQUIREMENTS

Knowledge Goal
Knowledge Outcome 1 (K1): Natural Sciences
Two (2) learning experiences

One experience in laboratory science must be selected from either K1 or K2.

Knowledge Outcome 2 (K2): Social Sciences
Two (2) learning experiences

One experience in laboratory science must be selected from either K1 or K2.

Knowledge Outcome 3 (K3): Humanities
Two (2) learning experiences

Knowledge Outcome 4 (K4): Fine Arts
One (1) learning experience

Skills Goal
Skills Outcome 1 (S1): Written and Oral Communication
Two (2) learning experiences

One S1 must meet the University Writing Requirement.

Skills Outcome 2 (S2): Mathematics
One (1) learning experience

One S2 to meet the University Mathematics Requirement.

Skills Outcome 3 (S3): Creativity
One (1) learning experience

Responsibility Goal
Responsibility Outcome 1 (R1): Equity, Diversity, and Inclusivity
Two (2) learning experiences

One R1 must satisfy Design for Diversity.

Responsibility Outcome 2 (R2): Global Perspectives
One (1) learning experience

Responsibility Outcome 3 (R3): Civic and Environmental Issues
One (1) learning experience

Integration Goal
Integration Outcome 1 (I1): Integration
Two (2) learning experiences

Service-Learning Goal
Service-Learning
30 hours

College Degree Requirements

Bachelor of Arts or Bachelor of Science Degree (B.A./B.S.)

University Graduation Requirements. All candidates for degrees must fulfill the requirements for credits, curriculum, GPA, and University residency as specified in the section of this catalog titled University Graduation Requirements.

College Graduation Requirements: Grade Point Averages. All candidates for degrees in the College of Arts and Sciences must earn minimum resident and total GPAs of 2.00 in the major, the minor, and the certificate. The resident and total GPAs for the major are computed using all attempted credits applicable to the major including those offered by departments other than the major department. The resident and total GPAs for the minor and the certificate are computed similarly.

Major-Minor and Major-Certificate Requirements. A standard major (a minimum of 36 credits) must be supplemented by a minor (a minimum of 24 credits) or by a certificate (12 to 18 credits) to meet graduation requirements for completing a first and second degree program. No minor or certificate is required with a Comprehensive Major (60 or more credits) or with two majors of 36 or more credits each.

Certain degree programs which include Comprehensive Majors may require more than the minimum of 120 credits for graduation.
Acceptable academic program combinations are determined at the college level. A major and a minor or a major and certificate or two majors (if available) may not be elected in the same department or program, except in the approved combinations listed here.

**College Credits.** Earn at least 90 credits in courses offered by the College of Arts and Sciences.

**Bachelor of Arts Degree in the College of Arts and Sciences (B.A.)**
Fulfillment of all University Graduation Requirements (which includes the Liberal Education Core); all College-level degree requirements (major and minor/certificate emphases, GPAs, earning at least 90 credits in Arts and Sciences course work); foreign language competency at the 102 level. Foreign language competency may be met in one of two ways: (1) Achieve a score on the foreign language placement test that qualifies the student to enter the 201-level course in a foreign language. (2) Earn a grade of at least C (not C-) or a mark of S in a 102-level foreign language course (or AIS 112 or AIS 122 / LANG 122 or CSD 103).

**Bachelor of Science Degree in the College of Arts and Sciences (B.S.)**
Fulfillment of all University Graduation Requirements (which includes the Liberal Education Core); all College-level degree requirements (major and minor/certificate emphases, GPAs, earning at least 90 credits in Arts and Sciences course work); mathematics competency at the MATH 111, MATH 112 or MATH 113 level. Mathematics competency can be met in one of three ways: (1) Achieve a score on the mathematics placement test that qualifies the student to enter MATH 114. (2) Earn a grade of at least C (not C-) or a mark of S in MATH 111, MATH 112, or MATH 113. (3) Achieve a satisfactory score on the MATH 112 competency test. This test may be attempted no more than two times.

**Major Requirements**

Advisors: J. Anderson (Biology), W. Gallagher (Chemistry), D. Gingerich (Biology), S. Hati (Chemistry), S. Bailey-Hartsel (Chemistry), J. Lyman Gingerich (Biology), S. Showsh (Biology), T. Yang (Chemistry).

This major leads to entry-level employment opportunities in research and development in industrial and government laboratories as well as to entry-level positions in the biotechnology industry. Graduates will also be well prepared to enter graduate studies in molecular biology, genetics, and related fields, as well as for admission to professional schools in medicine, osteopathy, pharmacy and dentistry. BMB majors are eligible to apply for Biology or Chemistry Department Honors (see Biology and Chemistry Department entries for criteria.)

**Biochemistry/Molecular Biology**
A minimum of 69 semester credits, including:

<table>
<thead>
<tr>
<th>I. Biology Course Requirements</th>
<th>(minimum of 26 credits)</th>
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<tbody>
<tr>
<td>BIOL 221 Foundations of Biology I</td>
<td>4</td>
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<tr>
<td>BIOL 222 Foundations of Biology II</td>
<td>3</td>
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<td>BIOL 233 Foundations of Biological Inquiry</td>
<td>2</td>
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<tr>
<td>BIOL 305 Molecular and Cell Biology</td>
<td>4</td>
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<tr>
<td>BIOL 323 Genetics</td>
<td>3</td>
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<tr>
<td>BIOL 324 Genetics Inquiry</td>
<td>2</td>
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<tr>
<td>BIOL 405 Advanced Cell and Molecular Lab</td>
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<tr>
<td>BIOL 409 Molecular Genetics</td>
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<tr>
<th>II. Chemistry Course Requirements</th>
<th>(minimum of 30 credits)</th>
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<tbody>
<tr>
<td>CHEM 115 Chemical Principles</td>
<td>6</td>
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<tr>
<td>CHEM 213 Quantitative Analysis</td>
<td>4</td>
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<tr>
<td>CHEM 325 Organic Chemistry I with Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 326 Organic Chemistry II with Laboratory</td>
<td>4</td>
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<tr>
<td>CHEM 406 Biophysical Chemistry</td>
<td>4</td>
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<tr>
<td>CHEM 452 Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 454 Biochemistry II</td>
<td>3</td>
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<tr>
<td>CHEM 453 Biochemistry Laboratory</td>
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<tr>
<th>III. Other Course Requirements</th>
<th>(minimum of 13 credits)</th>
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<tr>
<td>MATH 114 Calculus I</td>
<td>4</td>
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<tr>
<td>PHYS 211 General Physics</td>
<td>5</td>
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<tr>
<td>PHYS 212 General Physics</td>
<td>4</td>
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Note 1: CHEM 103 and CHEM 104 may be substituted for CHEM 115, but only six of the eight credits count toward the major.

Note 2: CHEM 433 (CHEM 434 optional) may be substituted for CHEM 406. (MATH 215 and PHYS 231, PHYS 232 required if CHEM 433 (CHEM 434) is taken.) This substitution is strongly recommended for students considering doctoral study in biophysics or physical biochemistry.

Note 3: Students are also encouraged to seek out a collaborative research experience or do independent study (BIOL 399, BIOL 499, CHEM 399, CHEM 497, or CHEM 499) in addition to their formal course work.