B.S. IN MOLECULAR LIFE SCIENCES (Molecular and Structural Biology concentration) — DEGREE REQUIREMENT CHECK SHEET
For students who matriculated summer 2020 through spring 2022

<table>
<thead>
<tr>
<th>Student Name/ID: _____________________</th>
<th>Purpose: __________________________</th>
<th>Date: ___________________</th>
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**Credit hours:**
- Currently enrolled in: ______ semester: ______
- Currently enrolled in: ______ semester: ______

**AFTER SUCCESSFUL COMPLETION OF CURRENT ENROLLMENT, YOU NEED THE FOLLOWING:**

### IUB GENERAL EDUCATION REQUIREMENTS:
- **Foundations:**
  - ☐ English Composition (minimum grade of C required)
  - ☐ Mathematical Modeling (fulfilled by major)
- **Breadth of Inquiry:**
  - ☐ Arts & Humanities (A&H)–6 credits; need: ______
  - ☐ Social & Historical (S&H)–6 credits; need: ______
  - ☐ Natural & Mathematical (N&M)–(fulfilled by major)
- **World Languages & Cultures:**
  - ☐ World Language–4th semester proficiency
  - ☐ World Cultures–6 credits
  - ☐ Approved international experience

GenEd residency complete: Yes  No  If no, you need: ______

### TOTAL HOURS REQUIREMENTS:

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<tr>
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<th>Required</th>
<th>Complete</th>
<th>Needed</th>
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<tbody>
<tr>
<td>Major Hours</td>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total College Hours</td>
<td>100</td>
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<tr>
<td>Total Credit Hours</td>
<td>120</td>
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<tr>
<td>300-499 level Hours</td>
<td>36</td>
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<td>IUB COLL. Res. after 60 Hours</td>
<td>36</td>
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IPRP (in-progress repeated course): Yes  No  If yes, credit hours showing as needed in your AAR may not be accurate. Ask an advisor!

College GPA of at least 2.000 is required. ______

### CASE REQUIREMENTS:
- ☐ Public Oral Communication (COLL-P 155)
- ☐ English Composition
- ☐ Critical Approaches to the Arts and Sciences–must be done at IUB
- ☐ CASE A&H–2 courses; will count 2 GenEd A&H here; need: ______
- ☐ CASE S&H–2 courses; will count 2 GenEd S&H here; need: ______
- ☐ CASE N&M–4 courses; fulfilled by major
- ☐ Intensive Writing (IW)–must be done at IUB inside the College
- ☐ Foreign Language (FL)–3rd semester proficiency
- ☐ CASE Culture Studies: Diversity in U.S. course–must be done at IUB

**MOLECULAR LIFE SCIENCES MAJOR REQUIREMENTS:**

Major requirements must be completed with a C- or better. ★Addenda Requirements (courses marked with ★ below) must be completed with a C- or better, but they do not count toward major GPA or major hours.

- ☐ 33 major hours: ______ needed
- ☐ 18 major hours at 300-499 level: ______ needed
- ☐ Major GPA and concentration GPA ≥ 2.000.  Major GPA: ______  Concentration GPA: ______

### MOLECULAR LIFE SCIENCES

- ☐ BIOL-L 112  ☐ BIOL-L 211
- ☐ BIOL-L 323, BIOL-S 211, BIOL-X 325
  - ("Genome Engineering" topic only), BIOT-T 315, BIOT-X 325, CHEM-X 325, OR both
  - CHEM-A 314 and CHEM-A 316

- ☐ BIOL-L 312
- ☐ MLS-M 420  ☐ MLS-M 430
- ☐ Lab: BIOT-T 425  (fall only; see prerequisites)
- ☐ BIOL-L 388 OR MLS-M 388  (spring only)
- ☐ MLS-M 410
- ☐ MLS-M 440 OR MLS-M 450

### CHEMISTRY

- ★ CHEM-C 117 and CHEM-C 127
- ★ CHEM-C 341
- ★ CHEM-C 342
- ★ CHEM-C 343
- ★ Biological Chemistry: CHEM-C 383 OR CHEM-C 483 OR CHEM-C 484

### PHYSICS

- ★ PHYS-P 201 OR PHYS-P 221
- ★ PHYS-P 202 OR PHYS-P 222

### STATISTICS


### MATH

- ★ MATH-M 120 OR MATH-M 211 OR MATH-M 212
Molecular Life Sciences B.S. degree with concentration in Molecular and Structural Biology

Students pursuing the Concentration in Molecular and Structural Biology will develop a contemporary, mechanistic understanding of living systems. Students will build a strong foundation in cell biology, molecular biology, and biochemistry. They also apply molecular and structural approaches to understand protein metabolism, learn about nucleic acid metabolism and epigenetic regulation, and explore bioinformatic approaches to characterizing biomolecules.

The concentration requires at least 12 credit hours, including the requirements listed below.

Protein Laboratory. One (1) course:

Bioinformatics. One (1) course:
- MLS-M 388 Digital Biology: A Survey of Topics in Bioinformatics and Functional Genomics (3 cr., P: BIOL-L 211 or instructor consent) (spring)

Protein Metabolism. One (1) course:
- MLS-M 410 Protein Metabolism (3 cr., P: BIOL-L 211) (fall)

Electives. One (1) course:
- MLS-M 440 Membranes and Signal Transduction (3 cr., P: BIOL-L 211) (spring)
- MLS-M 450 Molecular Mechanisms of Cancer (3 cr., P: BIOL-L 211) (fall)

Notes
- For this concentration, it is wise to take BIOL-L 312 Cell Biology (P: BIOL-L 211) relatively early.
- Except for the GPA requirement, a grade of C- or higher is required for a course to count toward a requirement in the concentration.
- A GPA of at least 2.000 for all courses taken in the concentration—including those where a grade lower than C- is earned—is required.
- Most courses have prerequisites. Always check the Bulletin and the Schedule of Classes for course information before taking a course.

Subplan code: MLSMSBCON