B.S. IN MOLECULAR LIFE SCIENCES (Molecular and Structural Biology concentration) — DEGREE REQUIREMENT CHECK SHEET
For students who matriculated summer 2022 through spring 2024

Student Name/ID: _____ Purpose: _____ Date: _____

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
  OR World Cultures–6 credits
  OR Approved international experience

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

TOTAL HOURS REQUIREMENTS:

	Required	Complete	Needed
Major Hours	33		
Total College Hours	100		
Total Credit Hours	120		
300-499 level Hours	36		
IUB COLL Res. after 60 Hours	36		

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 ☐ Mathematical Modeling (fulfilled by major)
- ☐ 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.
- ☐ 18 major hours at IUB: _____ needed
- ☐ 12 concentration hours: _____ needed

Major GPA: _____ Concentration GPA: _____

MOLECULAR LIFE SCIENCES

- ☐ BIOL-L 112 ☐ BIOL-L 211
- ☐ BIOL-L 323, BIOL-L 324, 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 *(fall)* ☐ MLS-M 430
- ☐ Lab: BIOT-T 425 ***(fall only**; see prerequisites)*
- ☐ MLS-M 388 **OR** BIOL-L 388 *(spring only)*
- ☐ MLS-M 410 *(typically fall)*
- ☐ MLS-M 440 *(spring)* **OR** MLS-M 450 *(fall)*

CHEMISTRY

- ☐ ★ CHEM-C 117 and CHEM-C 127 lab (or CHEM-C 117 and CHEM-X 150 lab)
- ☐ ★ CHEM-C 341
- ☐ ★ CHEM-C 342
- ☐ ★ CHEM-C 343 **OR** CHEM-X 325
- ☐ **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

- ☐ ANTH-A 306, ECON-E 370, POLS-Y 395, PSY-K 300, PSY-K 310, SOC-S 371, STAT-K 310, STAT-S 300, STAT-S 301, **OR** STAT-S 303

★ 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:

- BIOT-T 425 Lab in Macromolecular Production, Purification, & Characterization (3 cr.; P: CHEM-C 341 **and** one of: **BIOT-T 315**, BIOL-L 313, BIOL-L 319, **BIOL-L 323, BIOL-L 324**, BIOL-M 315, BIOL-M 360, or BIOL-M 435) *(fall)*

Bioinformatics. One (1) course:

- BIOL-L 388 Digital Biology: A Survey of Topics in Bioinformatics and Genomics (3 cr., P: BIOL-L 211 or instructor consent) *(spring)*
- 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.