

B.S. IN MOLECULAR LIFE SCIENCES (Molecular and Structural Biology concentration) – DEGREE REQUIREMENT CHECK SHEET

For students who matriculated summer 2020 through spring 2022

Student Name/ID: _____

Purpose: _____

Date: _____

Credit hours:

Currently enrolled in: _____ semester: _____

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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 IUB: _____ needed 18 major hours at 300-499 level: _____ needed 12 concentration hours: _____ needed Major GPA and concentration GPA \geq 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** 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) (*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.