

# B.S. IN MOLECULAR LIFE SCIENCES (Developmental and Cellular 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–4<sup>th</sup> 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		
<b>Total Credit Hours</b>	120		
300-499 level Hours	36		
IUB COLL Res. after 60 Hours	36		

I PRP (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)–3<sup>rd</sup> 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  14 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
- BIOL-L 311  BIOL-L 417 (*spring*)
- BIOL-L 313 **OR** BIOL-L 319 **OR** BIOL-Z 318 **OR** BIOL-X 325 (“Immune Response” topic)
- Two Elective lectures (see reverse for list):  
 \_\_\_\_\_  
 \_\_\_\_\_

**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 Developmental and Cellular Biology

Student pursuing the Concentration in Developmental and Cellular Biology explore topics in cell biology, developmental biology, genetics, and molecular biology. The course sequence offers both introductory and advanced level courses in each of these disciplines. Students will learn how individual cells function, how they interact with their neighbors, and how a single cell grows and develops into a fully functional adult.

The concentration requires at least 14 credit hours, including the requirements listed below.

**Both** of the following courses:

- BIOL-L 311 Genetics (3 cr., P: BIOL-L 211) (*fall, spring, and summer*)
- BIOL-L 417 Stem Cells in Development, Disease, and Regeneration (3 cr., P: BIOL-L 311) (*spring*)

**One (1)** course from the Laboratory list:

- BIOL-L 313 Cell Biology Laboratory (3 cr., P: BIOL-L 113; and one of BIOL-L 211 or CHEM-C 342) (*fall and spring*)
- BIOL-L 319 Genetics Laboratory (3 cr., P: BIOL-L 211; P or C: BIOL-L 311) (*fall and spring*)
- BIOL-X 325 ASURE Biology Research Lab 2 (**approved topic: “Immune Response and Behavior”**) (3 cr.) (*fall or spring, depending on your cohort*)
- BIOL-Z 318 Developmental Biology Laboratory (2 cr., P: BIOL-L 311; P or C: BIOL-L 417) (*rarely offered*)

**Two (2)** courses from the Electives list:

- BIOL-L 388 Digital Biology: A Survey of Topics in Bioinformatics and Genomics (3 cr., P: BIOL-L 211) [**or** MLS-M 388] (*spring*)
- BIOL-L 485 Genetics, Models of Human Disease, and Critical Analysis of Biological Research (3 cr., P: BIOL-L 311) (*fall*)
- BIOL-L 486 Advanced Cell Biology (3 cr., P: BIOL-L 312) (*spring*)
- BIOL-L 487 Molecular Mechanisms of Development and Disease (3 cr., P: BIOL-L 417) (*spring*)
- MLS-M 388 Digital Biology: A Survey of Topics in Bioinformatics and Functional Genomics (3 cr., P: BIOL-L 211 or instructor consent) [**or** BIOL-L 388] (*spring*)
- MLS-M 450 Molecular Mechanisms of Cancer (3 cr., P: BIOL-L 211) (*fall*)
- PSY-P 410 Development of the Brain and Behavior (3 cr., P: PSY-P 326 or PSY-P 346) (*spring*)
- PSY-P 457 Topics in Psychology (**approved topic: “Development and Maintenance of Brain Circuits”**) (variable credit hours and prerequisites; see Schedule of Classes)
- PSY-P 466 Molecular and Cellular Neurobiology (3 cr., P: PSY-P 326 or PSY-P 346) (*fall*)
- PSY-P 470 Molecular Methods in Neuroscience Research (3 cr., P: PSY-P 326 or PSY-P 346) (*spring*)

### Notes

- For this concentration, it is wise to take BIOL-L 311 *Genetics* (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.