**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: ______________
- 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:**

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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>
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<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

**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: ______

**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 CHEMISTRY**

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<tr>
<td>BIOL-L 112</td>
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<tr>
<td>BIOL-L 211</td>
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<tr>
<td>BIOL-L 323, BIOL-S 211, BIOL-X 325</td>
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<tr>
<td>(“Genome Engineering” topic only), BIOT-T 315, BIOT-X 325, CHEM-X 325, OR both CHEM-A 314 and CHEM-A 316</td>
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<tr>
<td>BIOL-L 312</td>
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<td>MLS-M 420</td>
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<td>MLS-M 430</td>
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<tr>
<td>BIOL-L 417 (spring)</td>
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<tr>
<td>BIOL-L 313 OR BIOL-L 319 OR BIOL-Z 318 OR BIOL-X 325 (“Immune Response” topic)</td>
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<td>Two Elective lectures (see reverse for list):</td>
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**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

College GPA of at least 2.000 is required. ______
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.