INTEGRATIVE BIOLOGY, BSLAS

The Integrative Biology major provides students with a solid preparation in genetics, evolution, anatomy, physiology, ecology, and molecular biology. After completion of the foundational 100- and core 200-300-level courses in IB, students complete the required advanced coursework by taking a variety of IB and other courses or focusing on a limited area of IB. Plans for the student’s combination of advanced courses are developed in consultation with an advisor. All undergraduates in this field are required to have a strong background in the biological and physical sciences.

Students pursuing a degree in Integrative Biology will be allowed to earn a second degree in the Specialized Curriculum in Biochemistry. Students pursuing a degree in Integrative Biology will not be allowed to double major in Molecular and Cellular Biology.

For students interested in adding licensure to the BSLAS in Integrative Biology, please visit the Biology Teaching page (http://sib.illinois.edu/undergraduate/programs/teaching/).

Distinction for Excellence in Research

To be eligible for graduation with Distinction for excellence in Research a student must:

- Be enrolled as an Integrative Biology Major
- Either:
  1. Complete two or more semesters of IB 390/IB 490 for 2-credit hours or more each semester. The student should enroll in IB 490 the semester the student intends to graduate, which counts towards the two required semesters.

  OR

  2. Complete at least 180 hours of mentored research. The research experience must last a minimum of 20 weeks (the weeks need not be consecutive and summer research counts toward this total) and students should enroll in one semester of IB 490 for a minimum of 1-credit hour prior to or during the semester they intend to graduate. Example: a student could complete a 10-week summer research experience combined with enrolling in IB 490 the semester they intend to graduate.

- Maintain a minimum 3.25 GPA within the major at the end of the penultimate semester.
- Submit a written thesis and give an oral presentation at the Undergraduate Research Symposium or other approved venue.
- Have a completed distinction evaluation form submitted by their Faculty Research Advisor. The level of Distinction will be determined by the SIB Distinction Committee based on the written thesis, the oral presentation, and the Advisor’s evaluation. Substitutions or other changes to these requirements may be made only via petition to and approval of the Chair of the SIB Distinction Committee and the SIB Associate Director for Academic Affairs.

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Integrative Biology Distinction: To be eligible for distinction a student must graduate with a grade-point average of at least 3.25 and submit a report of an independent student project (IB 490) about two months prior to graduation for approval by the Integrative Biology Distinction Committee. For additional information visit: SIB Graduation with Distinction Requirements (http://sib.illinois.edu/undergraduate/distinction/).

Minimum hours for graduation is 120, to include a minimum of 40 hours of upper-division coursework generally at the 300- and 400- level. These hours can be drawn from all elements of the degree.

General education: Students must complete the Campus General Education (https://courses.illinois.edu/gened/DEFAULT/DEFAULT/) requirements including the campus general education language requirement.

Minimum required major and supporting course work: Normally equates to 66-75 hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAS 101</td>
<td>Design Your First Year Experience</td>
<td>1</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAS 100</td>
<td>Success in LAS for International Students and Design Your First Year Experience</td>
<td>3</td>
</tr>
<tr>
<td>&amp; LAS 101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

High or Highest Distinction for Excellence in Research

To be eligible for graduation with High or Highest Distinction for Excellence in Research a student must:

- Be enrolled as an Integrative Biology Major
- Either:
  1. Complete two or more semesters of IB 390/IB 490 for 2-credit hours or more each semester. The student should enroll in IB 490 the semester the student intends to graduate, which counts towards the two required semesters.

OR

  2. Complete at least 180 hours of mentored research. The research experience must last a minimum of 20 weeks (the weeks need not be consecutive and summer research counts toward this total) and students should enroll in one semester of IB 490 for a minimum of 1-credit hour prior to or during the semester they intend to graduate. Example: a student could complete a 10-week summer research experience combined with enrolling in IB 490 the semester they intend to graduate.

- Maintain a minimum 3.25 GPA within the major at the end of the penultimate semester.
- Submit a written thesis and give an oral presentation at the Undergraduate Research Symposium or other approved venue.
- Have a completed distinction evaluation form submitted by their Faculty Research Advisor. The level of Distinction will be determined by the SIB Distinction Committee based on the written thesis, the oral presentation, and the Advisor’s evaluation. Substitutions or other changes to these requirements may be made only via petition to and approval of the Chair of the SIB Distinction Committee and the SIB Associate Director for Academic Affairs.

Information listed in this catalog is current as of 07/2023
**Major Core Requirements and Electives**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 220</td>
<td>Calculus (sections that start with ‘X’ are strongly recommended)</td>
<td>4-5</td>
</tr>
<tr>
<td>or MATH 221</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>STAT 212</td>
<td>Biostatistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one group of courses: 8-10

- CHEM 102: General Chemistry I
- CHEM 103: General Chemistry Lab I
- CHEM 104: General Chemistry II
- CHEM 105: General Chemistry Lab II
- or
- CHEM 202: Accelerated Chemistry I
- CHEM 203: Accelerated Chemistry Lab I
- CHEM 204: Accelerated Chemistry II
- CHEM 205: Accelerated Chemistry Lab II

Select one group of courses: 5-6

- CHEM 232: Elementary Organic Chemistry I
- & CHEM 233: and Elementary Organic Chem Lab I
- CHEM 236: Fundamental Organic Chem I
- & CHEM 237: and Structure and Synthesis

Select one group of courses: 8-10

- PHYS 101: College Physics: Mech & Heat
- & PHYS 102: and College Physics: E&M & Modern
- PHYS 211: University Physics: Mechanics
- & PHYS 212: and University Physics: Elec & Mag
- IB 150: Organismal & Evolutionary Biol
- MCB 150: Molec & Cellular Basis of Life
- IB 202: Physiology (IB 202 requires animal dissection and no equivalent alternative is available. IB majors are required to enroll in the 4-hour version of this course.)
- IB 203: Ecology
- IB 204: Genetics (IB majors are required to enroll in the 4-hour version of IB 204.)
- IB 302: Evolution

Advanced Free Elective (300- or 400-level course from IB or any other unit on campus) 3

At least 15 hours of coursework from the Approved List of Advanced Courses below:

**Figure 1. Sample Sequence**

- At least one course from two of the following three areas:
  - Area I: Organismal and Evolutionary Biology (IB 335, IB 360, IB 362, IB 368, IB 401, IB 461, IB 462, IB 463, IB 464, IB 471)

- One advanced course with a laboratory and/or field component.

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**Sample Sequence**

*This sample sequence is intended to be used only as a guide for degree completion. All students should work individually with their academic advisors to decide the actual course selection and sequence that works best for them based on their academic preparation and goals. Enrichment programming such as study abroad, minors, internships, and so on may impact the structure of this four-year plan. Course availability is not guaranteed during the semester indicated in the sample sequence.

Students must fulfill their Language Other Than English requirement by successfully completing a fourth level of a language other than English. For more information, see the corresponding section on the Degree General and Education Requirements page (http://catalog.illinois.edu/general-information/degree-general-education-requirements/).*

**First Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
<th>Second Semester Hours</th>
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<tbody>
<tr>
<td>LAS 101</td>
<td>1 MCB 150</td>
<td>4</td>
</tr>
<tr>
<td>IB 150</td>
<td>4 CHEM 104 (or CHEM 204)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 102 (or CHEM 202)</td>
<td>3 CHEM 105 (or CHEM 205)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 103 (or CHEM 203)</td>
<td>1 Language Other than English (4th level)</td>
<td>4</td>
</tr>
<tr>
<td>Language Other than English (3rd level)</td>
<td>4 MATH 220 (or MATH 221) or Comp. I</td>
<td>5-4</td>
</tr>
<tr>
<td>Comp. I or MATH 220 (or MATH 221)</td>
<td>4-5</td>
<td></td>
</tr>
</tbody>
</table>
PHYS 101 (or PHYS 211) 5
PHYS 102 (or PHYS 212) 5
General Education course 3
General Education course 3
General Education course 3

Fourth Year
First Semester Hours Second Semester Hours
Advanced IB Course 3 Advanced IB Course 3
Advanced IB Course 3 General Education course 3
General Education course 3 Free elective course 3
Free elective course 3 Free elective course 3
Free elective course 3 Free elective course 3

Total Hours 120

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By the time they graduate, an Integrative Biology major should:

Content-related understandings

1. Possess a significant knowledge base in Integrative Biology, including but not limited to:
   a. Structure and function
   b. Ecology
   c. Genetics
   d. Evolution
   e. Molecular biology
   f. Statistical inference
2. Understand that biology is integrative and multidisciplinary
3. Show curiosity and caring about biology, and an awareness of and appreciation for the diversity of life
4. Understand how paradigms of biology relate to society and policy as well as their own lives

Competencies

1. Carry out the process of scientific inquiry
2. Use critical thinking skills and solve problems
3. Use quantitative reasoning and computation skills
4. Apply simple models (equations/math) to biological phenomena
5. Gain proficiency in scientific writing and speaking
6. Read and evaluate primary scientific literature
7. Critically evaluate science-related news and information
8. Work collaboratively

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