

Biology 479 – Biology Portfolio Checklist

Version S16 – For Students Matriculated prior to AY 2018-19

Student's Name: _____

Student's Royal ID: _____

Student's Academic Advisor: _____

List of attached supporting documentation:

Current version of CAPP sheet *must be attached to submitted Checklist.*

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Student's signature _____
Date

Advisor's signature _____
Date

Biology Chair's signature _____
Date

1. Demonstrate mastery of content across the broad field of modern biology



Biology majors are required to take the two-semester general biology course with laboratories (BIOL 141-BIOL 142 with labs). In addition to this 9-credit sequence, biology majors will select a minimum of 27 credits of biology electives, with at least four credits in courses at the 200-level or higher that deal primarily with phenomena in each of the three subject areas listed below and a minimum of three laboratory courses.

BIOL 141 and 141L

BIOL 142 and 142L

Total Credit Count from all courses below (must be at least 27 credits): _____

Credit count for each course is indicated in parentheses

MC Molecular & Cellular Elective (minimum of 4 credits) CREDIT COUNT _____

- | | |
|---|---|
| <input type="checkbox"/> BIOL 250 - Microbiology (3) | <input type="checkbox"/> BIOL 358 - Cellular and Molecular Neurobiology (3) |
| <input type="checkbox"/> BIOL250L - Microbiology Lab (2) | <input type="checkbox"/> BIOL 361- Molecular Biology I (3) |
| <input type="checkbox"/> BIOL 260 - Genetics (3) | <input type="checkbox"/> BIOL 361L - Molecular Biol. I Lab (2) |
| <input type="checkbox"/> BIOL 260L - Genetics Lab (1.5) | <input type="checkbox"/> BIOL 362 - Molecular Biology II (3) |
| <input type="checkbox"/> BIOL 344 - Immunology (3) | <input type="checkbox"/> BIOL 362L - Molecular Biol. II Lab (2) |
| <input type="checkbox"/> BIOL 344L - Immunology Lab (1.5) | <input type="checkbox"/> BIOL 364 - Virology (3) |
| <input type="checkbox"/> BIOL 350 - Cellular Biology (3) | <input type="checkbox"/> BIOL 464 - Molecular Biology of Cancer (3) |
| <input type="checkbox"/> BIOL 350L - Cellular Biology Lab (2) | |

S Systems Electives (minimum of 4 credits) CREDIT COUNT _____

- | | |
|---|---|
| <input type="checkbox"/> BIOL 241 - Comparative Vertebrate Anatomy (3) | <input type="checkbox"/> BIOL 347 - Exercise Physiology (3) |
| <input type="checkbox"/> BIOL 241L - Comparative Vertebrate Anatomy Lab (2) | <input type="checkbox"/> BIOL 348 - Functional Neuroanatomy (3) |
| <input type="checkbox"/> BIOL 245 - General Physiology (3) | <input type="checkbox"/> BIOL 349- Plant Physiology (3) |
| <input type="checkbox"/> BIOL 245L - General Physiology Lab (1.5) | <input type="checkbox"/> BIOL 349L - Plant Physiology Lab(2) |
| <input type="checkbox"/> BIOL 255 - Animal Nutrition and Metabolism (3) | <input type="checkbox"/> BIOL 351- Developmental Biology (3) |
| <input type="checkbox"/> BIOL 272 - Invertebrate Biology (3) | <input type="checkbox"/> BIOL 351L - Developmental Biol Lab (2) |
| <input type="checkbox"/> BIOL 272L - Invertebrate Biology Lab (2) | <input type="checkbox"/> BIOL 352- Histology (3) |
| <input type="checkbox"/> BIOL 342 - Comparative Biomechanics (4) | <input type="checkbox"/> BIOL 352L - Histology Lab (2) |
| <input type="checkbox"/> BIOL 345 - Comparative Animal Physiology (3) | <input type="checkbox"/> BIOL 354 - Special Histology (3) |
| <input type="checkbox"/> BIOL 346 - Endocrinology and Reproduction (3) | <input type="checkbox"/> BIOL 354L - Special Histology Lab(2) |
| | <input type="checkbox"/> BIOL 395 - Extreme Physiology (3) |
| | <input type="checkbox"/> BIOL 444 - Sensory Biology (3) |
| | <input type="checkbox"/> BIOL 446 - Cardiovascular Physiology (3) |
| | <input type="checkbox"/> BIOL 453 - Skeletal Biology (3) |
| | <input type="checkbox"/> BIOL 454 - Pathophysiology (3) |

MO Multi-Organismal Electives (minimum of 4 credits) CREDIT COUNT _____

- | | |
|--|--|
| <input type="checkbox"/> BIOL 273 - Marine Ecology (3) | <input type="checkbox"/> BIOL 370 - Animal Behavior (3) |
| <input type="checkbox"/> BIOL 274 - Conservation Biology (3) | <input type="checkbox"/> BIOL 370 - Animal Behavior Lab (1.5) |
| <input type="checkbox"/> BIOL 27X - Entomology (3) | <input type="checkbox"/> BIOL 371 - Ecology (3) |
| <input type="checkbox"/> BIOL 27XL - Entomology Lab (1.5) | <input type="checkbox"/> BIOL 371L - Ecology Lab (2) |
| <input type="checkbox"/> BIOL 295 - Philippines Organisms and Ecosystems (3) | <input type="checkbox"/> BIOL 374 - Vertebrate Biology (3) |
| <input type="checkbox"/> BIOL 360 - Molecular Evolution and Bioinformatics (3) | <input type="checkbox"/> BIOL 374L - Vertebrate Biology (2) |
| <input type="checkbox"/> BIOL 368 - Neuroethology (4) | <input type="checkbox"/> BIOL 375 - Evolution (3) |
| | <input type="checkbox"/> BIOL 472 - Systems Ecology (3) |
| | <input type="checkbox"/> BIOL 473 - Estuarine Ecology (3) |
| | <input type="checkbox"/> BIOL 473L - Estuarine Ecology Lab (2) |

Major Electives (in addition to courses checked above)

Fill in the box below and write the total credit count here: _____

Write down the courses that count towards the major electives. Courses must be BIOL.

Course	Credits

2. Laboratory Expertise



Biology majors must have three laboratory course experiences at the 200 level or above from at least two of the three content areas (Molecular/Cellular, Systems, and Multi-organismal)

At least one course should be a laboratory course that incorporates manipulation of tissue or whole organisms at the macroscopic level.

Students should consult the department's website and their advisors for the lists of courses that fulfill these requirements.

NOTE: One of the labs can be substituted by only one of the following laboratory experiences; **supporting documentation must be attached:**

- Successfully defended an Honors Thesis (BIOL 488H/489H) involving research that generated original data.
- Successfully completed a fellowship or internship for summer research in a life science-related project.
- Successfully completed Independent Research (BIOL 393 or BIOL 394).

Check ALL boxes below:

Whole organism manipulation lab _____

Content Area: MC ____ S ____ MO ____

Courses include Biol 241L, 272L, 342, 349L, 351L, 368, 370L, 371L

Lab experience 2 _____

Content Area: MC ____ S ____ MO ____

Lab experience 3 _____

Content Area: MC ____ S ____ MO ____

3. Critically evaluate biological data (two courses or experiences)



Students must gain expertise in acquiring data either first-hand or from primary literature sources, and in evaluating and interpreting the data. Activities include: literature searches, data analysis and synthesis, and graphical representation of data.

Check ANY TWO boxes below:

Courses approved by the department that fulfill this requirement.

<input type="checkbox"/> BIOL 245L General Physiology Lab	<input type="checkbox"/> BIOL 368 Neuroethology
<input type="checkbox"/> BIOL 272L Invertebrate Biology Lab	<input type="checkbox"/> BIOL 370L Animal Behavior Lab
<input type="checkbox"/> BIOL 273 Marine Ecology	<input type="checkbox"/> BIOL 371L Ecology Lab
<input type="checkbox"/> BIOL 342 Comparative Biomechanics	<input type="checkbox"/> BIOL 374L Vertebrate Biology Lab
<input type="checkbox"/> BIOL 349L Plant Physiology Lab	<input type="checkbox"/> BIOL 379 Biostatistics
<input type="checkbox"/> BIOL 350L Cellular Biology Lab	<input type="checkbox"/> BIOL 446 Cardiovascular Physiology
<input type="checkbox"/> BIOL 351L Developmental Biol. Lab	

- Successfully defended an Honors Thesis (BIOL 488H/489H) that generates original data (*attach documentation*).
- Successfully completed a project awarded a Fellowship for Summer Research in a life science-related project that generates original data (*attach documentation*).
- Successfully completed Independent Research (BIOL 393 or BIOL 394) that generates original data (*attach documentation*)
- Served as an author of an article that includes original data and is submitted for publication to a peer-reviewed journal (*attach documentation*).

4. Demonstrate mastery of the scientific method



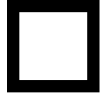
This experience would ordinarily be demonstrated by activities involving independent investigation or experimental design. The experimental design must employ the scientific method, which includes designing a hypothesis and protocol, gathering data, interpreting results, developing conclusions, and formulating future directions for further investigation.

Check ANY ONE box below:

Courses approved by the department that fulfill this requirement.

- BIOL 272L Invertebrate Biology Lab
- BIOL 342 Comparative Biomechanics
- BIOL 349L Plant Physiology Lab
- BIOL 350L Cellular Biology Lab
- BIOL 351L Developmental Biology Lab
- BIOL 368 Neuroethology
- BIOL 370L Animal Behavior Lab
- Successfully defended an Honors Thesis (BIOL 488H/489H) that incorporated the scientific method (*attach documentation*).
- Successfully completed a project awarded a Fellowship for Summer Research in a life science-related project that incorporates the scientific method (*attach documentation*)
- Successfully completed Independent Research (BIOL 393 or BIOL 394) that incorporates the scientific method (*attach documentation*).
- Served as an author of an article that incorporates the scientific method and is submitted for publication to a peer-reviewed journal (*attach documentation*).
- Presented a project at the Biology Department Fall or Spring Student Conference that incorporates the scientific method as described above(*attach documentation*).

5. Effectively communicate biological information in writing



These experiences ordinarily include a written product in which a majority of the citations come from the primary literature or that incorporates original data.

Check ANY TWO of the boxes below

Courses approved by the department that fulfill this requirement.

<input type="checkbox"/> BIOL 250L Microbiology Lab	<input type="checkbox"/> BIOL 358 Cellular and Molecular Neurobiology
<input type="checkbox"/> BIOL 272 Invertebrate Biology	<input type="checkbox"/> BIOL 362L Molecular Biology II Lab
<input type="checkbox"/> BIOL 273 Marine Ecology	<input type="checkbox"/> BIOL 368 Neuroethology
<input type="checkbox"/> BIOL 342 Comparative Biomechanics	<input type="checkbox"/> BIOL 370 Animal Behavior
<input type="checkbox"/> BIOL 350L Cellular Biology Lab	<input type="checkbox"/> BIOL 371L Ecology Lab
<input type="checkbox"/> BIOL 351L Developmental Biol. Lab	<input type="checkbox"/> BIOL 374L Vertebrate Biology Lab

- Worked with a faculty mentor, produce a written project, either in a class or independently (*attach documentation*).
Courses that offer optional written projects include but are not limited to:
 - Biol 371 – Ecology
 - Biol 374 – Vertebrate Biology
- Successfully defended an Honors Thesis (BIOL 488H/489H) that generated original data. (*attach documentation*)
- Served as an author of an article that is submitted for publication to a peer-reviewed journal (*attach documentation*).
- Served as first author of a poster presented at a scientific conference (requires evidence that the abstract was published in the conference program or website, *attach documentation*).

6. Effectively communicate biological information orally



These experiences ordinarily demonstrate that the student has read the primary literature and/or analyzed original data. The oral presentation should be at least 10 minutes long.

Check ANY TWO of the boxes below:

Courses approved by the department that fulfill this requirement.

<input type="checkbox"/> BIOL 272L Invertebrate Biology Lab	<input type="checkbox"/> BIOL 358 Cellular and Molecular Neurobiology
<input type="checkbox"/> BIOL 342 Comparative Biomechanics	<input type="checkbox"/> BIOL 368 Neuroethology
<input type="checkbox"/> BIOL 344L Immunology Lab	<input type="checkbox"/> BIOL 444 Sensory Biology
<input type="checkbox"/> BIOL 351L Developmental Biology Lab	<input type="checkbox"/> BIOL 446 Cardiovascular Physiology
<input type="checkbox"/> BIOL 352 Histology	<input type="checkbox"/> BIOL 453 Skeletal Biology

- Successfully defended an Honors Thesis (BIOL 488H/489H) that generated original data.
- Made an oral presentation at an extramural scientific conference (requires evidence that the abstract was published in the conference program or website, *attach documentation*).
- Made a poster presentation as PRIMARY or PRESENTING AUTHOR at an extramural scientific conference (requires evidence that the abstract was published in the conference program or website, *attach documentation*). Note: second authorship of a poster does NOT qualify.
- Made an oral or poster presentation at the Annual Celebration of Student Scholars or an equivalent on-campus forum (*attach documentation*).
- With the approval of the instructor, made an oral presentation in a class that might not ordinarily require an oral presentation (*attach documentation*).
- Made an oral presentation at the Biology Department Fall or Spring Student Conference (*attach documentation*).