

Program Learning Outcomes for Biology

- Outcome 1 (Knowledge): Demonstrate mastery of core concepts in Cell and Molecular Biology (biochemistry and cell organelle processes, macromolecules, enzyme activity and regulation, cell-cell communication, molecular genetics, including DNA replication and mutation, gene structure, regulation of gene expression, bacteriophages and viruses, and genetic engineering)—embedded tests
- Outcome 2 (Knowledge): Demonstrate mastery of core concepts in Ecology and Evolution (natural selection and adaptation, population genetics, patterns of evolution, origin of life, population ecology, community ecology, ecosystems, and human impacts)—embedded tests
- Outcome 3 (Application): Develop analytical and hypothesis testing skills to address biological problems.
- Outcome 4 (Analysis): Acquire proficiency with quantitative concepts, statistical analyses, and graphical presentation of data
- Outcome 5 (Communication): Develop skill in written and oral interpretation, synthesis, and presentation of data—GE Rubrics for Written and Oral Communication
- Outcome 6 (Application): Develop skill in the use of basic laboratory and field equipment for biological science and laboratory safety

Curriculum Matrix

The key for the table is as follows: I – Introducing. D – Developing. M – Mastering. NA – Not Applicable

Course	PLO 1 Demonstrate mastery of core concepts in Cell and Molecular Biology	PLO 2 Demonstrate mastery of core concepts in Ecology and Evolution	PLO 3 Develop analytical and hypothesis testing skills to address biological problems	PLO 4 Acquire proficiency with quantitative concepts, statistical analyses, and graphical presentation of data	PLO 5 Develop skill in written and oral interpretation, synthesis, and presentation of data	PLO 6 Develop skill in the use of basic laboratory and field equipment for biological science and laboratory safety
BIOL 171-171L	I	NA	I	I	I	I
BIOL 172-172L	NA	I	I	I	I	I
BIOL 270-270L	I,D	NA	I,D	I,D	I,D	I,D
BIOL	I	I	I,D	I,D	I,D	I,D

280						
BIOL 281- 281L	NA	I,D	I,D	I,D	I,D	I,D
BIOL 243- 243L	D	D	D	D	D	D
BIOL 244- 244L	D	D	D	D	D	D
BIOL 340- 340L	D	NA	D	D	D	D
BIOL 357	NA	D	D	D	D	D
BIOL 375- 375L	D	I	D	D	D	D
BIOL 376- 376L	D	D	D	D	D	D
BIOL 381	NA	D	D	D	D	D
BIOL 410- 410L	M	NA	M	M	M	M
BIOL 415- 415L	M	NA	M	M	M	M
BIOL 443	NA	M	M	M	M	NA
BIOL 445	NA	M	M	M	M	NA
BIOL 455	NA	M	M	M	M	NA
BIOL 460	D,M	M	M	M	M	NA
BIOL 461	M	NA	M	M	M	NA
BIOL 467	D,M	M	M	M	M	NA
BIOL 477- 477L	NA	M	M	M	M	M
BIOL 481- 481L	D,M	M	M	M	M	M

BIOL 495A and 495B	M	M	M	M	M	NA
-----------------------------	---	---	---	---	---	----

Rubric for Biology Research Paper/Lab Reports

Scale	Learning of course materials (vocabulary)	Prose/Discourse	Analysis/Insight
Mastery	Student effectively uses correct and specific vocabulary and concepts that enhance the writing; this indicates a full understanding of the subject	Uses sophisticated language that is highly appropriate to academia	Student communicates information in an advanced manner that leads to unique insight
Competent	Student uses some vocabulary and/or concepts but does not fully demonstrate a full grasp of the subject	Uses some high level terms but prose is at times simplistic and/or colloquial	Student communicates basic information and some analysis of the material
Beginning	Student does not use vocabulary or concepts and the writing indicates a lack of understanding of the subject	Language is completely inappropriate for academia	Student cannot communicate information in a manner that is logical or rational