Biology - B.S.

College of
Arts and Sciences

To address the breadth and depth essential to educating biologists, the biology major is structured to include both a broad foundation through core courses and opportunity for specialization within a biological subfield through biology electives. The major is designed to prepare the student for a post-baccalaureate profession in biology, for advanced professional training in the health sciences, or for graduate study in basic and applied areas of the biological sciences.

120 hours (minimum)

Any student earning a Bachelor of Science (BS) degree must complete a minimum of 60 hours in natural, physical, mathematical, and computer science. A complete description of College requirements for a Bachelor of Science degree, including a specific listing of courses applicable to the 60-hour requirement, can be found on pages 119-120 of the *Arts and Sciences* section of the *2012-2013 Undergraduate Bulletin* on the Web at: **www.uky.edu/Registrar/bulletinCurrent/a_s.pdf**.

UK Core Requirements

See the *UK Core* section of the *2012-2013 Undergraduate Bulletin* at: **www.uky.edu/Registrar/bulletinCurrent/ukc.pdf** for the complete UK Core requirements. The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill UK Core areas. Students should work closely with their advisor to complete the UK Core requirements.

I. Intellectual Inquiry in Arts and Creativity
Choose one course from approved list 3

II. Intellectual Inquiry in the Humanities
Choose one course from approved list 3

III. Intellectual Inquiry in the Social Sciences
Choose one course from approved list 3

IV. Intellectual Inquiry in the Natural, Physical, and Mathematical Science
CHE 105 General College Chemistry I 4
CHE 111 Laboratory to Accompany General Chemistry I 1

V. Composition and Communication I
CIS/WRD 110 Composition and Communication I 3

VI. Composition and Communication II
CIS/WRD 111 Composition and Communication II 3

VII. Quantitative Foundations
Choose one course from approved list 3-4

VIII. Statistical Inferential Reasoning
Choose one course from approved list 3

IX. Community, Culture and Citizenship in the USA
Choose one course from approved list 3

X. Global Dynamics
Choose one course from approved list 3

UK Core Hours 32-33

College Requirements

Humanities – one course 3
Social Science – one course 3
Third and fourth semesters of language 6
Free Electives 6
Lab or Field Experience – *satisfied by major*
Graduation Writing Requirement (choose any GWR Humanities 300-level course; this will also count as one of the two Humanities courses in the College Requirements)

General Education and College hours: 49 (*39*)

Premajor Requirements

BIO 148 Introductory Biology I 3
BIO 152 Principles of Biology II 3
BIO 155 Laboratory for Introductory Biology I 1
*CHE 105 General College Chemistry I 4
*CHE 111 Laboratory to Accompany General Chemistry I 1
CHE 107 General College Chemistry II 3
CHE 113 Laboratory to Accompany General Chemistry II 2
MA 137/138 Calculus I/II With Life Science Applications
or
*MA 113/114 Calculus I/II 8

Premajor hours: 25

Major Requirements

Minimum major requirement for graduation is 56 credit hours in courses not open to freshmen. The minimum GPA of all major and premajor courses must be at least 2.0.

Major Core

First Tier Core
BIO 303 Introduction to Evolution 4
BIO 304 Principles of Genetics 4

Second Tier Core
To be taken **after** completion of First Tier Core.

BIO 315 Introduction to Cell Biology 4
BIO 325 Ecology 4
BIO 350 Animal Physiology
or
BIO 430G Plant Physiology 4
Statistics (take any UK Core Statistical Reasoning course) 3
BIO 425 Biology Seminar (Subtitle required)
or
BIO 499 Biology Research Seminar 1

Core hours: 24

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Other Course Work Required for the Major

From Outside the Major Department

CHE 230 Organic Chemistry I 3
CHE 231 Organic Chemistry Laboratory I 1
CHE 232 Organic Chemistry II 3

*PHY 211/213 General Physics
or
*PHY 231/241 General University Physics/Laboratory
and
PHY 232/242 General University Physics/Laboratory 10

Biology Electives

Choose 15 hours of acceptable biology electives 15

Fifteen hours to be chosen from 200+ level BIO courses (excluding BIO 208) or the list below. Two courses must have labs, **one** of which may be BIO 395. A maximum of 6 credits of BIO 395 may be used as electives in this section. A total of 6 hours of Independent Research (395) from biological sciences departments may be counted within the 15 hour requirement; however, only BIO 395 is accepted for honors in biology. **NOTE:** ANA 209, BIO 208 and PGY 206 **cannot** be used for this requirement.

Other Major hours: **32**

Acceptable biology electives from outside the Department. Other courses may be accepted at the discretion of the Director of Undergraduate Studies in the Department of Biology:

A&S 300, 500 *(acceptable as upper-level credit **only** when offered by the Department of Biology)*
ABT 460
ANA 511, 512, 516 *(some other anatomy courses at the 500-level are accepted, but are usually restricted to professional students)*
ANT 332
ASC 364, 378
BCH 401G
CHE 226, 233, 440G, 441G, 442G, 446G, 532, 533, 550, 552, 558, 565
ENT 310, 320, 360, 402, 460, 561, 564, 568 *(ENT 360 is **not** acceptable as an upper-level elective for Biology majors. Substitutes for BIO 304 only if student transferred into Biology major after taking this course. Cross-listed as ABT/ASC/ENT/PLS 360.))*
FOR 315, 340, 375, 402
FSC 530
GLY/EES 401G
MI 494G, 595, 598
NRE 320, 420G, 450G, 455G
PGY 412G, 560 *(PGY 412G is acceptable as an elective for upper-level biology credit but **does not** substitute for BIO 350 or BIO 430G)*
PLS 320, 330, 332, 366, 450G, 502, 566, 567
PPA 400G
PSY 456, 459
STA 570, 580 *(Biology usually accepts only **one** of these courses for each student. Other STA courses may be accepted at the discretion of your advisor, and this may depend upon the area of biology in which you choose to specialize.)*
TOX 509

Total Minimum Hours Required for Degree **120**

**Course used towards completion of a UK Core Requirement.*