## BIOLOGY, BA

Biology offers courses in the life sciences designed to teach students biological concepts and principles with emphasis on individual laboratory experiences. The curriculum provides a sound basis for professional training in biology, biotechnology, medicine, dentistry, veterinary medicine, allied health, and teaching, as well as for general science education. Biology and Allied Health majors with strong academic backgrounds are encouraged to apply to the Roosevelt Honors Program, the honors curriculum of the university.

See the Allied Health program listing for degree programs leading to clinical licensing for fields such as Diagnostic Medical Sonography, Histotechnology, Medical Technology, Nuclear Medicine Technology, Radiography, and Radiation Therapy Technology.

The BA in biology is an option for students who wish an in-depth humanistic education in biology while completing a subset of the science and mathematics courses required for the BS in Biology. The Biology BA allows students to fashion a customized undergraduate experience, for example, completing a double-major or minor. However, it may not meet all requirements for admission to graduate and professional training programs. Consult with a science advisor to determine which Biology degree best suits your interests.

## Standards

All courses applying to the biology major, including required supporting courses, must be passed with a C - or higher grade and a minimum cumulative GPA of 2.0.

## Requirements

Requirements for the BA degree include 30 credit hours of acceptable credits in biology and at least one 300-level laboratory course beyond BIOL 301 CELLULAR \&MOLECULAR BIOLOGY. Students must also complete three courses covering interdisciplinary topics within the sciences or between the sciences and other disciplines. Students must take at least one class in each of the following six competencies: Applying the Process of Science, Quantitative Reasoning, Modeling and Simulation, Interdisciplinary, Communication and Collaboration, and Science and Society. These competencies can be fulfilled by either biology electives or the three outside electives identified in the course list below. Courses may cover up to two competencies.

- Students must complete the final 30 credit hours of their degree at Roosevelt University; off-site allied health courses do not count towards this requirement.
- At least 20 credit hours in acceptable biology, chemistry, or physics courses must be successfully completed at Roosevelt University; no more than 15 credit hours of acceptable biology courses may be taken completed elsewhere and applied to the BA biology degree.
- Following enrollment, completion of all remaining biology, chemistry, physics and mathematics course requirements for Biology degrees must be accomplished at Roosevelt University. Under special circumstances, written permission to take required courses elsewhere may be granted by Biology advisors.
- Biology courses must have been taken within the last eight years to be accepted for graduation.
- No more than six credit hours total of independent study (BIOL 395 INDEPENDENT STUDY), (BIOL 392 RESEARCH IN BIOLOGY), and internships (BIOL 391 MEDICAL INTERNSHIP, or BIOL 396 BIOLOGY

INTERNSHIP) in biology may be used to fulfill the requirements of the major.

- Technical and/or clinical courses are not acceptable for transfer credit.
- AP biology credit with a score of 3.0 or higher may apply toward the major in biology or the general education requirements after consultation with an advisor.
- AP chemistry credit with a score of 4 or higher satisfies the requirements for CHEM 201 with lab.
- At least one biology course with a laboratory above BIOL 301 CELLULAR \&MOLECULAR BIOLOGY (not including independent research).
- A grade of C - is the minimal acceptable grade for a course to be applied to the major and the supporting sequence or acceptable as a prerequisite for subsequent courses.
- A minimum GPA of 2.0 is required for all courses in the major.

| Code | Title |
| :--- | :--- | ---: |
| Courses Required for the Biology BA |  | Credit Hours

## Area 1 Applying the Process of Science

Select at least one course from this list. Course offerings
will vary by semester.

| BIOL 123 | ANATOMY \&PHYSIOLOGY I |
| :--- | :--- |
| BIOL 124 | ANATOMY \&PHYSIOLOGY II |
| BIOL 242 | ANIMAL BEHAVIOR |
| BIOL 314 | QUANTITATIVE ECOLOGY AND |
|  | CONSERVATION |
| BIOL 339 | EVOLUTIONARY PHYSIOLOGY (Lab) |
| BIOL 351 | GENERAL GENETICS (Lecture) |
| BIOL 360 | MICROBIOLOGY (Lab) |
| BIOL 367 | IMMUNOLOGY (Lab) |
| BIOL 369 | CONSERVATION BIOLOGY: AFRICA |

Area 2: Quantitative Reasoning
Select at least one course from this list. Course offerings will vary by semester.

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BCHM 344
                                    BIOINORGANIC CHEMISTRY
BCHM 356 EXPERIMENTAL METHODS IN
    BIOCHEMISTRY & BIOTECHNOLOGY
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| BCHM 357 | ADVANCED BIOCHEMISTRY |
| :--- | :--- |
| BIOL 314 | QUANTITATIVE ECOLOGY AND <br> CONSERVATION |
| BIOL 315 | ECOLOGY (Lab) |
| BIOL 324 | MARINE BIOLOGY |
| BIOL 351 | GENERAL GENETICS (Lecture) |
| BIOL 381 | BIOLOGY OF BIRDS: ORNITHOLOGY |
| Area 3: Modeling and Simulation |  |
| Select at least one course from this list. Course offerings |  |
| will vary by semester. |  |
| BIOL 242 | ANIMAL BEHAVIOR |
| BCHM 355 | BIOCHEMISTRY |
| BIOL 325 | VIROLOGY |
| BIOL 363 | GENOMICS \& APPLIED BIOINFO |

## Area 4: Interdisciplinary

Select at least one course from this list. Course offerings
will vary by semester.

| BCHM 344 | BIOINORGANIC CHEMISTRY |
| :--- | :--- |
| BCHM 355 | BIOCHEMISTRY |
| BCHM 356 | EXPERIMENTAL METHODS IN <br>  <br> BIOCHEMISTRY \& BIOTECHNOLOGY |
| BCHM 357 | ADVANCED BIOCHEMISTRY |
| BIOL 315 | ECOLOGY (Lecture) |
| BIOL 337 | NUTRITION IN AMERICA |
| BIOL 350 | CANCER BIOLOGY |
| BIOL 360 | MICROBIOLOGY (Lecture) |
| BIOL 381 | BIOLOGY OF BIRDS: ORNITHOLOGY |

## Area 5: Communication and Collaboration

Select at least one course from this list. Course offerings
will vary by semester.

| BIOL 123 | ANATOMY \&PHYSIOLOGY I |
| :--- | :--- |
| BIOL 124 | ANATOMY \&PHYSIOLOGY II |
| BIOL 339 | EVOLUTIONARY PHYSIOLOGY |
| BIOL 351 | GENERAL GENETICS (Lab) |
| BIOL 360 | MICROBIOLOGY (Lecture) |
| BIOL 367 | IMMUNOLOGY (Lecture) |

## Area 6: Science and Society

Select at least one course from this list. Course offerings will vary by semester.

| BCHM 322 | FERMENTATION SCIENCE |
| :--- | :--- |
| BIOL 315 | ECOLOGY (Lecture) |
| BIOL 323 | TROPICAL MARINE BIOLOGY |
| BIOL 324 | MARINE BIOLOGY |
| BIOL 337 | NUTRITION IN AMERICA |
| BIOL 350 | CANCER BIOLOGY |
| BIOL 367 | IMMUNOLOGY (Lecture) |
| BIOL 369 | CONSERVATION BIOLOGY: AFRICA |
| Any of the following courses can be taken as general |  |
| electives to reach the required 30 credit hours in the |  |
| Biology major |  |
| BIOL 221 | KINESIOLOGY |
| BIOL 304 | HISTOLOGY \& ULTRASTRUCTURE |
| BIOL 332 | ECOLOGY OF TALLGRASS PRAIRIE |


| BIOL 336 | INTRODUCTION TO NEUROSCIENCE |
| :--- | :--- |
| BIOL 383 | SPECIAL TOPICS IN BIOLOGY |
| BIOL 391 | MEDICAL INTERNSHIP |
| BIOL 392 | RESEARCH IN BIOLOGY |
| BIOL 395 | INDEPENDENT STUDY $^{\text {Major Electives outside of BIOL (take 3) }}{ }^{\mathbf{1 , 2}}$ |
|  |  |
| Area 3: Modeling and Simulation |  |
| MATH 307 | DIFFERENTIAL EQUATION/MODELING |
| CST 310 | GAME THEORY AND APPLICATIONS |

Area 4: Interdisciplinary

| CHEM 212 | ORGANIC CHEMISTRY II |
| :--- | :--- |
| MATH 231 | CALCULUS I |
| MATH 232 | CALCULUS II |
| PHYS 201 | INTRODUCTION TO NON-CALCULUS <br>  <br> BASED PHYSICS I |
| PHYS 202 | INTRO TO NON-CALCULUS PHYSICS II |

Area 6: Science and Society

| HIST 301 | HISTORY OF PUBLIC HEALTH |
| :--- | :--- |
| HIST 348 | SOCIAL \& CULTURAL HISTORY OF <br> MEDICINE 1500-PRESENT |
| MATH 316 | HISTORY OF MATHEMATICS |
| PHIL 230 | ETHICS |
| PHIL 330 | PHILOSOPHY OF NATURE |
| PHIL 331 | PHILOSOPHY OF TECHNOLOGY |
| POS 250B | URBAN ENVIRONMENTAL JUSTICE |
| POS 250C | PUBLIC HEALTH ISSUES \& IDEAS |
| PSYC 285 | RESEARCH METHODS |
| PSYC 325 | SENSATION AND PERCEPTION |
| PSYC 350 | HUMAN NEUROPSYCHOLOGY |
| SUST 220 | WATER |
| SUST 230 | FOOD |
| SUST 310 | ENERGY AND CLIMATE CHANGE |
| SUST 330 | BIODIVERSITY |
| SUST 360 | WRITING URBAN NATURE |
| SUST 361 | URBAN ECOLOGY |

General Education, University Writing Requirement, and Electives

| Courses to total 120 | $60-54$ |
| :--- | ---: |

Total Credit Hours

## 120

1
Must be selected in consultation with an advisor. 2
Student must take three total courses from these electives but these courses can be from any of the listed competencies. The six competencies can be fulfilled by either biology electives or the three outside electives identified in the course list.

## CORE Requirements (General Education)

| Code | Title | Credit Hours |
| :--- | :--- | ---: |
| First Year Success | Course or Transfer Success Course |  |
| FYS 101 | FIRST YEAR SUCCESS COURSE |  |
| or TRS 101 | TRANSFER SUCCESS 101 | 1 |

## Communication Requirement

$\left.\begin{array}{llr}\hline \text { ENG } 101 & \begin{array}{l}\text { COMPOSITION I: CRITICAL READING \& } \\ \text { WRITING }\end{array} & 3 \\ \hline \text { ENG 102 } & \begin{array}{l}\text { COMPOSITION II: INTRODUCTION TO }\end{array} \\ \text { COMM 101 } \begin{array}{ll}\text { ACADEMIC RESEARCH }\end{array} & 3 \\ \text { PUBLIC SPEAKING (or program specific } \\ \text { CORE communications course) }\end{array}\right]$

| Mathematics |  |
| :--- | :--- |
| MATH $110 \quad$ QUANTITATIVE LITERACY (or above) |  |

## Science

One biological science and one physical science required 7-8

## (one must include a one credit lab).

## Social Sciences

9 credits from the following subject areas: African- 9
American Studies, Criminal Justice, Economics, History,
Journalism, Philosophy, Political Science, Psychology,
Sociology and Women's and Gender Studies

## Experiential Learning

6 credits from coursework categorized as Experiential 6
Learning.
Total Credit Hours 47-48

1
Higher level of Math may be required by major
These quantitative requirements also apply to degrees.

- Students must earn a minimum of 120 semester hours.
- Students may apply no more than 60 credit hours of 100 -level courses toward the degree.
- Students must apply no fewer than 60 credit hours of 200-and 300level courses toward the degree.
- Students must have at least 18 credit hours (of the 60 credit hours above) at the 300 level.
- Students may transfer in no more than 70 credit hours from community colleges.
- Students earning less than 60 total hours in residence must take their final 30 hours at Roosevelt University. Note that some majors have additional requirements for RU hours.
- Students must have a grade point average of 2.0 or higher to graduate. Note that some majors have additional GPA requirements.
- Students may apply no more than 51 hours in the major (BA) or 57 hours in the major (BS)

Your degree map is a general guide suggesting courses to complete each term on the academic pathway to your degree. It is based on the most current scheduling information from your academic program. Your program's degree map is reviewed annually and updated as schedules change (although you retain the same course requirements as long as you are continuously enrolled in your degree program).

Always work closely with your academic advisor to understand curriculum requirements and scheduling, as each student's academic plan can look slightly different.

| Year 1 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Fall | Credit Hours | Spring | Credit Hours |  |
| FYS 101 |  | 1 BIOL 202 |  | 5 |
| ENG 101 |  | 3 Ideas of Social Justice |  | 3 |
| MATH 121 |  | 3 ENG 102 |  | 3 |
| CHEM 201 |  | 5 CHEM 202 |  | 5 |
| Humanities \#1 |  | 3 |  |  |
| 15 |  |  |  | 16 |

## Year 2

| Fall | Credit Hours | Spring | Credit Hours |  |
| :---: | :---: | :---: | :---: | :---: |
| BIOL 201 |  | 5 BIOL 301 (Experiential Learning \#1) ${ }^{3}$ |  | 5 |
| MATH 217 |  | 3 Social Science \#2 |  | 3 |
| CHEM 210 or 211 |  | 5 Humanities \#2 |  | 3 |
| Social Science \#1 |  | 3 Major Elective outside of BIOL \#1 |  | 3 |

Year 3

| Fall | Credit Hours | Spring | Credit Hours |
| :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { BIOL } 3 X X \text { with } \\ & \text { Lab }^{2} \end{aligned}$ |  | 5 Biology Elective | 3 |
| Major Elective outside of BIOL \#2 |  | 3 Major Elective outside of BIOL \#3 | 3 |
| Humanities \#3 |  | 3 Social Science \#3 | 3 |
| COMM 101 |  | 3 General Elective ${ }^{1}$ | 3 |
|  |  | General Elective ${ }^{1}$ | 3 |
|  |  | 14 | 15 |

Year 4

| Fall | Credit Hours | Spring <br> Biology Elective |
| :--- | :--- | :--- |
|  | 3 Experiential <br> Learning \#2 | Credit Hours |$\quad 3$

## Total Credit Hours 120

1
Or course towards an optional Minor.
2
Any course at the 300 level within the discipline above BIOL 301. 3
Experiential Learning class must be 200/300 level. Satisfies CORE Experiential Learning requirement. EXL courses can satisfy major requirements/electives or CORE requirement.

