

Biology & Law, Technology & Culture BA

(120 credit minimum)

First Year

| 1st Semester | | Credits |
|-------------------------|--|-----------|
| BIOL 200 | Concepts in Biology | 4 |
| CHEM 125 or CHEM 121 | General Chemistry I ¹ or Fundamentals of Chemical Principles I | 3 |
| CHEM 125A | General Chemistry Lab I | 1 |
| MATH 138 | General Calculus I | 3 |
| ENGL 101 | English Composition: Introduction to Academic Writing | 3 |
| FYS SEM | First-Year Student Seminar | 0 |
| Term Credits | | 14 |

2nd Semester

| | | |
|-------------------------|--|-----------|
| BIOL 205 | Foundations of Biology: Ecology and Evolution Lecture | 3 |
| BIOL 206 | Foundations of Biology: Ecology and Evolution Lab | 1 |
| CHEM 126A | Gen Chemistry Lab II | 1 |
| CHEM 126 or CHEM 122 | General Chemistry II ¹ or Fundamentals of Chemical Principles II | 3 |
| MATH 238 | General Calculus II | 3 |
| ENGL 102 | English Composition: Introduction to Writing for Research | 3 |
| Term Credits | | 14 |

Second Year

1st Semester

| | | |
|--|---|-----------|
| BIOL 201 | Found of Biol: Cell & Molecula | 3 |
| BIOL 202 | Found of Biol: Cell & Molecula | 1 |
| CHEM 243 | Organic Chemistry I | 3 |
| BNFO 135 or CS 101 | Programming for Bioinformatics or Computer Programming and Problem Solving | 3 |
| MATH 105 | Elementary Probability and Statistics | 3 |
| History and Humanities GER 200 level (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/) | | 3 |
| Term Credits | | 16 |

2nd Semester

| | | |
|--|---------------------------------|-----------|
| Biology Functional Laboratory Elective Cluster B | | 4 |
| CHEM 244 | Organic Chemistry II | 3 |
| CHEM 244A | Organic Chemistry II Laboratory | 2 |
| Social Science GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/social-science-ger/) | | 3 |
| Legal Foundations Elective ² | | 3 |
| Term Credits | | 15 |

Third Year

1st Semester

| | | |
|---|---------------------|-----------|
| Biology Laboratory Elective | | 4 |
| Biology Cluster A or C Elective | | 3 |
| PHYS 102 | General Physics | 3 |
| PHYS 102A | General Physics Lab | 1 |
| Legal Foundations Elective ² | | 3 |
| LTC Core Elective | | 3 |
| Term Credits | | 17 |

2nd Semester

| | |
|--|-----------|
| Biology Laboratory Elective ³ | 3 |
| Biology Cluster A or C Elective | 3 |
| PHYS 103 General Physics | 3 |
| PHYS 103A General Physics Lab | 1 |
| Legal Foundations Elective ² | 3 |
| Technical Elective ⁴ | 4 |
| Term Credits | 17 |

Fourth Year**1st Semester**

| | |
|---|-----------|
| Biology Elective | 3 |
| Biology Elective | 3 |
| Technical Elective ⁵ | 3 |
| HSS Senior Seminar GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/) ⁶ | 3 |
| LTC Core Elective | 3 |
| Term Credits | 15 |

2nd Semester

| | |
|---|------------|
| HIST 310 Co-op in Law, Technology, Culture and History I | 3 |
| LTC Core Elective / Technical Elective ⁷ | 3 |
| LTC Core Elective / Technical Elective ⁷ | 3 |
| Biology Elective | 3 |
| Term Credits | 12 |
| Total Credits | 120 |

Biology Credits: 38

Technical Electives

Any course in chemistry, math or physics beyond major requirements. Any course in environmental science, computer science or engineering. Additional biology courses can be used as technical electives.

Free Electives

Any course in any subject at any level.

Biology Electives

One course must be taken from each cluster.

Concept Cluster Ecology and Evolution

| Code | Title | Credits |
|-------------|-----------------|---------|
| BIOL 222 | Evolution | 3 |
| or R120 222 | Evolution | |
| R120 280 | Ecology | 3 |
| R120 370 | Plant Ecology | 3 |
| BIOL 382 | Animal Behavior | 3 |

Concept Cluster Molecular and Cellular

| Code | Title | Credits |
|-------------|-------------------|---------|
| BIOL 352 | Genetics | 3 |
| or R120 352 | Genetics | |
| R120 355 | Cell Biology | 3 |
| R120 356 | Molecular Biology | 3 |

| | | |
|-------------|--------------|---|
| CHEM 473 | Biochemistry | 3 |
| or R120 360 | Biochemistry | |

Concept Cluster Functional Organism (4 credits)

| Code | Title | Credits |
|------------------------|--|---------|
| R120 211 | Plant Kingdom | 4 |
| R120 230 | Biology Of Seed Plants | 4 |
| R120 330 | Plant Physiology | 4 |
| R120 335 | General Microbiology | 4 |
| BIOL 340 | Mammalian Physiology | 4 |
| or R120 340 | Mammalian Physiology | |
| R120 342 & R120 343 | Developmental Biology and Developmental Biology Lab | 4 |

Laboratory/ Field Experience (7 credits, At least one 4-credit lab)

| Code | Title | Credits |
|----------------------------------|--|---------|
| Four Credit Laboratories | | |
| R120 211 | Plant Kingdom | 4 |
| R120 227 | Biol Invertebrates | 4 |
| R120 230 | Biology Of Seed Plants | 4 |
| R120 311 | Flora of New Jersey | 4 |
| R120 313 | Mycology | 4 |
| BIOL 321 | Comp Vertebrate Anatomy | 4 |
| R120 325 & R120 326 | Animal Parasites and Parasitology Lab | 4 |
| R120 330 | Plant Physiology | 4 |
| R120 335 | General Microbiology | 4 |
| BIOL 340 | Mammalian Physiology | 4 |
| or R120 340 | Mammalian Physiology | |
| R120 342 & R120 343 | Developmental Biology and Developmental Biology Lab | 4 |
| BIOL 347 | Lab Approaches in Neuroscience | 4 |
| R120 404 | Intro to Neuroanatomy | 4 |
| R120 405 | Microanatomy of Cells | 4 |
| R120 430 | Plant Growth & Development | 4 |
| BIOL 451 | Cell Physiology and Imaging | 4 |
| R120 452 | Molecular Biol Techniques | 4 |
| FRSC 307 | Crime Scene Investigation & Lab | 4 |
| FRSC 480 | Forensic Microscopy & Lab | 4 |
| CHEM 475 & CHEM 473 | Biochemistry Lab I and Biochemistry | 5 |
| Three Credit Laboratories | | |
| R120 328 | Ornithology | 3 |
| R120 371 | Field Study Plant Ecology | 3 |
| R120 380 | Field Ecology | 3 |
| R120 381 | Ecological History of North Am | 3 |
| BIOL 484 | Evolution of Animal Behavior Laboratory | 3 |
| BIOL 475 | Ecological Field Methods and Analysis | 3 |
| R120 486 | Tropical Field Biology | 2 |

Biology Electives

| Code | Title | Credits |
|---|--|---------|
| Any concept cluster or lab course or any of the following | | |
| BIOL 315 | Principles of Neurobiology | 3 |
| BIOL 320 | Discovering Biological Research | 3 |
| BIOL 337 | Collective Intel in Biol Syst | 3 |
| BIOL 338 | Ecology of the Dining Hall | 3 |
| BIOL 441 | Neurophysiology | 3 |
| BIOL 342 | Developmental Biology (Embryology) | 3 |
| BIOL 423 | Physiological Mechanisms | 3 |
| BIOL 424 | Comparative Physiology | 3 |
| R120 346 | Neurobiology | 3 |
| BIOL 350 | Immunology | 3 |
| R120 365 | Evolutions of Humans | 3 |
| BIOL 468 | Disease Ecology & Evolution | 3 |
| BIOL 375 | Conservation Biology | 3 |
| BIOL 383 | Neural Basis of Behavior | 3 |
| BIOL 400 | Biology in Science Fiction | 3 |
| R120 402 | Biology of Cancer | 3 |
| R120 422 | Biological Invasions | 3 |
| BIOL 440 | Cell Biology of Disease: Cells gone Bad! | 3 |
| BIOL 445 | Endocrinology | 3 |
| or R120 445 | Endocrinology | |
| BIOL 447 | Systems Neurobiology | 3 |
| BIOL 448 | Neuropathophysiology: Nervous System Gone Bad! | 3 |
| BIOL 453 | Applied Genetics & Genomics | 3 |
| R120 455 | Molec Cell Biology | 3 |
| BIOL 462 | Comparative Biomechanics | 3 |
| R120 472 | Environmental Assessment | 3 |
| CHEM 474 | Biochemistry II | 3 |
| BIOL 491 & BIOL 492 | Research and Independent Study and Research and Independent Study | 6 |
| R120 493 & R120 494 | Seminar In Biology and Seminar In Biol | 2 |
| BIOL 495 | Honors Seminar in Biology | 3 |
| BIOL 498 | Special Topics in Biology | 3 |

See the **General Education Requirements** "Refer to the General Education Requirements for specific information for GER courses"

Legal Foundations Electives (9 credits)

| Code | Title | Credits |
|---|--|---------|
| Choose three of the following: ² | | |
| HIST 361 | The Founding of the American Nation | 3 |
| HIST 362 | Sex, Gender, and the Law in American History | 3 |
| HIST 364 | American Law in the World | 3 |
| HIST 369 | Law and Society in History | 3 |
| MGMT 290 | Business Law I | 3 |
| STS 300 | Legal Reasoning, Writing, and Technology | 3 |
| R790 304 | Intro Law And Legal Res | 3 |

LTC Core Electives (12 credits)

| Code | Title | Credits |
|-------------------------------|---|---------|
| Choose four of the following: | | |
| EVSC 335 | Environmental Law ⁸ | 3 |
| HIST 320 | Law and Evidence | 3 |
| HIST 338 | Environmental Justice and Climate Change in America | 3 |
| HIST 370 | Legal issues in the History of Media | 3 |
| HIST 375 | Legal Issues in Environmental History | 3 |
| HIST 378 | Medicine and Health Law in Modern America | 3 |
| HIST 384 | Invention and Regulation | 3 |
| IE 447 | Legal Aspects of Engineering ⁸ | 3 |
| IT 331 | Privacy and Information Technology ⁸ | 3 |
| IT 332 | Digital Crime ⁸ | 3 |
| IT 400 | Information Technology and the Law ⁸ | 3 |
| R790 382 | Environm Pol & Policy | 3 |

¹ CHEM 121 and CHEM 122 require permission from academic advisor

² At least two of the Legal Foundations Electives must also fulfill the History and Humanities 300+ GER (<https://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/>) requirement

³ Laboratory Elective - 3 or 4-credit laboratory

⁴ Technical Elective - Any course in BIOL, CHEM, CS, EVSC, IT, IS, PHYS, FRSC, MATH, MIS, MIT, and BME or any other engineering course qualifies, however **this technical elective must be four credits.**

⁵ Technical Elective - Any course in BIOL, CHEM, CS, EVSC, IT, IS, PHYS, FRSC, MATH, MIS, MIT, and BME or any other engineering course qualifies. **Taking a course that also counts as an LTC Core Elective is recommended.**

⁶ A law-related HSS Senior Seminar is required

⁷ At least 6 of the 12 credits of LTC Core Electives must be completed as Technical Electives. The qualifying LTC Core Electives are EVSC 335, IE 447, IT 331, IT 332, and IT 400.

⁸ This LTC Core elective course can also be used as a 3-credit Technical Elective.