

Biology & Law, Technology and Culture - B.A.

(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 |
| ENGL 102 | English Composition: Introduction to Writing for Research | 3 |
| MATH 105 | Elementary Probability and Statistics | 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 |
| History and Humanities GER 200 level (https://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/) | | 3 |
| Social Science GER (https://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/social-science-ger/) | | 3 |
| Term Credits | | 16 |

2nd Semester

| | | |
|--|--------------------------------|-----------|
| Biology Functional Laboratory Elective Cluster B | | 4 |
| CHEM 244 | Organic Chemistry II | 3 |
| CHEM 244A | Organic Chemistry I Laboratory | 2 |
| Legal Foundations Elective ² | | 3 |
| LTC Core Elective | | 3 |
| Term Credits | | 15 |

Third Year

1st Semester

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

2nd Semester

| | | |
|--|------------------------|-----------|
| Biology Laboratory Elective ³ | | 3 |
| Biology Cluster A or C Elective | | 3 |
| PHYS 103 | General Physics II | 3 |
| PHYS 103A | General Physics II Lab | 1 |
| Technical Elective ⁴ | | 3 |
| Legal Foundations Elective ² | | 3 |
| Term Credits | | 16 |

Fourth Year**1st Semester**

| | | |
|---|---|-----------|
| Biology Elective | | 3 |
| Biology Elective | | 3 |
| HSS 404 | Humanities, History and Social Sciences Senior Seminar ⁵ | 3 |
| LTC Core Elective | | 3 |
| LTC Core Elective / Technical Elective ⁶ | | 3 |
| Term Credits | | 15 |

2nd Semester

| | | |
|---|--|------------|
| HIST 310 or HIST 490 or R510 490 | Co-op in Law, Technology, Culture and History I ⁷ or Seminar - Research or Seminar:Research | 3 |
| LTC Core Elective / Technical Elective ⁶ | | 3 |
| Technical Elective ⁸ | | 4 |
| Biology Elective | | 3 |
| Term Credits | | 13 |
| Total Credits | | 120 |

Biology Credits: 41

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 or R216 222 | Evolution Evolution | 3 |
| R216 280 | Ecology | 3 |
| R120 370 | Plant Ecology | 3 |
| BIOL 382 | Animal Behavior | 3 |

Concept Cluster Molecular and Cellular

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

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| CHEM 473 or R120 360 | Biochemistry Biochemistry | 3 |
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Concept Cluster Functional Organism (4 credits)

| Code | Title | Credits |
|-------------------------|--|---------|
| R216 211 | Plant Kingdom | 4 |
| R216 230 | Biology Of Seed Plants | 4 |
| R216 330 | Plant Physiology | 4 |
| R120 335 | General Microbiology | 4 |
| BIOL 340 or R120 340 | Mammalian Physiology Mammalian Physiology | 4 |
| 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 | | |
| R216 211 | Plant Kingdom | 4 |
| R120 227 | Biol Invertebrates | 4 |
| R216 230 | Biology Of Seed Plants | 4 |
| R120 311 | Flora of New Jersey | 4 |
| R120 313 | Mycology | 4 |
| BIOL 421 | Comparative Vertebrate Anatomy | 4 |
| R120 325 & R120 326 | Animal Parasites and Parasitology Lab | 4 |
| R216 330 | Plant Physiology | 4 |
| R120 335 | General Microbiology | 4 |
| BIOL 340 or R120 340 | Mammalian Physiology Mammalian Physiology | 4 |
| 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 |
| R216 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 | | |
| R216 328 | Ornithology | 3 |
| BIOL 475 | Ecological Field Methods and Analysis | 3 |
| BIOL 484 | Evolution of Animal Behavior Laboratory | 3 |

Biology Electives

| Code | Title | Credits |
|---|---------------------------------|---------|
| Any concept cluster or lab course or any of the following | | |
| BIOL 222 | Evolution | 3 |
| R216 280 | Ecology | 3 |
| BIOL 315 | Principles of Neurobiology | 3 |
| BIOL 320 | Discovering Biological Research | 3 |

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| BIOL 337 | Collective Intel in Biol Syst | 3 |
| BIOL 338 | Ecology of the Dining Hall | 3 |
| BIOL 342 | Developmental Biology (Embryology) | 3 |
| R120 346 | Neurobiology | 3 |
| BIOL 350 | Immunology | 3 |
| BIOL 352 | Genetics | 3 |
| R120 355 | Cell Biology | 3 |
| R120 356 | Molecular Biology | 3 |
| R120 360 | Biochemistry | 3 |
| R216 365 | Evolutions of Humans | 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 |
| R216 422 | Biological Invasions | 3 |
| BIOL 423 | Physiological Mechanisms | 3 |
| BIOL 424 | Comparative Physiology | 3 |
| BIOL 440 | Cell Biology of Disease: Cells gone Bad! | 3 |
| BIOL 441 | Neurophysiology | 3 |
| BIOL 443 | Biology of Addiction | 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 |
| BIOL 462 | Comparative Biomechanics | 3 |
| BIOL 468 | Disease Ecology & Evolution | 3 |
| BIOL 491 & BIOL 492 | Research and Independent Study and Research and Independent Study | 6 |
| BIOL 492 | Research and Independent Study | 3 |
| BIOL 495 | Honors Seminar in Biology | 3 |
| BIOL 498 | Special Topics in Biology | 3 |
| CHEM 473 | Biochemistry | 3 |
| CHEM 474 | Biochemistry II | 3 |
| FRSC 498 | Special Topics in Forensic Science | 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 342 | Civil Rights Revolution and Law | 3 |
| 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 |
| HIST 395 | Research Methods in Law and Society | 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 ⁶ | 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 ⁶ | 3 |
| IT 331 | Privacy and Information Technology ⁶ | 3 |
| IT 332 | Digital Crime ⁶ | 3 |
| IT 400 | Information Technology and the Law ⁶ | 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. **Taking a course that also counts as an LTC Core Elective is recommended.**

⁵ Must be a law-related HSS 404 History Seminar approved by LTC Advisor.

⁶ 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.

⁷ Students may take a History Research Seminar (HIST 490 or R510 490) instead of HIST 310 with the approval of the LTC advisor. Student projects in the history research seminar must be law-related.

⁸ 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.**