

# 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 <sup>1</sup> 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
<b>Term Credits</b>		<b>14</b>

## 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 <sup>1</sup> or Fundamentals of Chemical Principles II	3
ENGL 102	English Composition: Introduction to Writing for Research	3
MATH 105	Elementary Probability and Statistics	3
<b>Term Credits</b>		<b>14</b>

## 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 ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/</a> )		3
Social Science GER ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/social-science-ger/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/social-science-ger/</a> )		3
<b>Term Credits</b>		<b>16</b>

### 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 <sup>2</sup>		3
LTC Core Elective		3
<b>Term Credits</b>		<b>15</b>

## 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 <sup>2</sup>		3
Biology Elective		3
<b>Term Credits</b>		<b>17</b>

**2nd Semester**

Biology Laboratory Elective <sup>3</sup>		3
Biology Cluster A or C Elective		3
PHYS 103	General Physics II	3
PHYS 103A	General Physics II Lab	1
Technical Elective <sup>4</sup>		3
Legal Foundations Elective <sup>2</sup>		3
<b>Term Credits</b>		<b>16</b>

**Fourth Year****1st Semester**

Biology Elective		3
Biology Elective		3
HSS 404	Humanities, History and Social Sciences Senior Seminar <sup>5</sup>	3
LTC Core Elective		3
LTC Core Elective / Technical Elective <sup>6</sup>		3
<b>Term Credits</b>		<b>15</b>

**2nd Semester**

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

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

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
<b>Four Credit Laboratories</b>		
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
<b>Three Credit Laboratories</b>		
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

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: <sup>2</sup>		
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 <sup>6</sup>	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 <sup>6</sup>	3
IT 331	Privacy and Information Technology <sup>6</sup>	3
IT 332	Digital Crime <sup>6</sup>	3
IT 400	Information Technology and the Law <sup>6</sup>	3
R790 382	Environm Pol & Policy	3

<sup>1</sup> CHEM 121 and CHEM 122 require permission from academic advisor

<sup>2</sup> 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

<sup>3</sup> Laboratory Elective - 3 or 4-credit laboratory

<sup>4</sup> 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.**

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

<sup>6</sup> 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.

<sup>7</sup> 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.

<sup>8</sup> 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.**