

B.A. in Patent Law, Technology and Culture

Major Requirements

The patent law, technology, and culture major requires a minimum of 51 credits of LTC major courses with a grade of C or higher. These courses may include offerings at NJIT and Rutgers-Newark. The patent law B.A. also requires a minimum of 120 total credits, including completion of the General Education Requirements (<http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/>). Each student's program of study is subject to approval by an advisor or by the chairperson of the department.

Students in the patent law curriculum program follow the standard curriculum for the Law, Technology and Culture B.A. (<http://catalog.njit.edu/undergraduate/science-liberal-arts/history/law-technology-culture-ba/>) while focusing their science-based coursework around a specific discipline (biology, chemistry, or physics). The curricular options for the Patent Law concentration are as follows:

Biology Options (B.A. or B.S.)

Students choosing the biology option must complete 8 credits of approved chemistry or physics courses and 24 credits of approved courses in biology, botany, microbiology, or molecular biology. The 8 semester hours in chemistry or physics must be obtained in two sequential courses, each course including a lab. Only biology courses for biology majors will be accepted. Subject to the approval of an advisor, students can earn a double-major B.A. in LTC and biology with 124 total credits. It is also possible to earn a double-major B.S. degree in LTC and Biology with 128 total credits.

Chemistry Options (B.A. or B.S.)

Students choosing the chemistry option must complete 30 credits of approved chemistry courses. Only chemistry courses for chemistry majors will be accepted. Subject to the approval of an advisor, students can earn a double-major B.S. in LTC and chemistry with 125 total credits.

Physics Options (B.A. or B.S.)

Students choosing the physics option must complete 24 credits of approved physics courses. Only physics courses for physics majors will be accepted. Subject to the approval of an advisor, students can earn a double-major B.S. in LTC and applied physics with 127 total credits. Students doing the B.S. in Applied Physics and LTC choose to study one of two concentrations: either Astronomy or Optical Science and Engineering.*

General Science Option (B.A.)

Students choosing the general science option must complete 8 credits of approved chemistry or physics courses and 32 credits of approved courses in chemistry, physics, biology, botany, microbiology, molecular biology, or engineering. The 8 semester hours of chemistry or 8 semester hours of physics must be obtained in two sequential courses, each course including a lab. Only courses for science or engineering majors will be accepted.*

***Note:** The science courses in each Patent Law, Technology and Culture major are taken in place of:

- 7-8 credits of the Natural Sciences GUR electives
- up to 24 credits of Law-Related electives
- up to 24 credits of Free Electives to fulfill 24 credits of Free Electives (as mandated by the U.S. Patent and Trademark Office).

B.A. in Patent Law, Technology and Culture

(120 credits minimum)

First Year

1st Semester	Credits
HUM 101	3
MATH 111 Calculus I	4
MGMT 290 Business Law I	3
Natural Science GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/natural-science-ger/)	3
Computer Science GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/computer-science-ger/)	3
FRSH SEM	0
Term Credits	16

2nd Semester

Social Science GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/social-science-ger/)	3
HUM 102	3
Mathematics GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/math-ger/)	
Legal Foundations Elective	3
Natural Science Literacy with Lab GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/natural-science-ger/)	4
Term Credits	13

Second Year**1st Semester**

Legal Foundations Elective	3
LTC Core Elective	3
History and Humanities GER 200 level (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/)	3
Natural Science GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/natural-science-ger/)	3
Free Elective	3
Term Credits	15

2nd Semester

Law Technology and Culture Core Elective	3
Law Related Elective	3
Free Elective	3
Free Elective	3
Natural Science with Lab GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/natural-science-ger/) ¹	4
Term Credits	16

Third Year**1st Semester**

Law Technology and Culture Core Elective	3
Law Related Elective	3
Natural Science GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/natural-science-ger/) ¹	3
Free Elective	3
Free Elective	3
Free Elective ²	1
Term Credits	16

2nd Semester

LTC Core Elective	3
Law Related Elective	3
Natural Science with Lab GER (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/natural-science-ger/) ¹	4
Free Elective	3
Free Elective	3
Term Credits	16

Fourth Year**1st Semester**

HIST 310	Co-op in Law, Technology, Culture and History I	3
HSS 404	Humanities, History and Social Sciences Senior Seminar	3
MGMT 390 or HRM 301	Principles of Business or Organizational Behavior	3
HIST 312	Prof Development in Law	1

Free Elective		3
Term Credits		13
2nd Semester		
Law Related Elective		3
Law Related Elective		3
Free Elective		3
Free Elective		3
Term Credits		12
Total Credits		117

* Student may replace 1-credit elective if he or she has taken a 4-credit course elsewhere

B.A. Double Major in Biology & Law, Technology and Culture

(124 credits minimum)

First Year

1st Semester

		Credits
BIOL 200	Concepts in Biology	4
CHEM 121 or CHEM 125	Fundamentals of Chemical Principles I or General Chemistry I	3
MATH 138	General Calculus I	3
HUM 101		3
BNFO 135	Programming for Bioinformatics	3
FRSH SEM		0
Term Credits		16

2nd Semester

R120 201	Foundations Of Biology	3
R120 202	Foundations Of Biology Lab	1
CHEM 122 or CHEM 126	Fundamentals of Chemical Principles II or General Chemistry II	3
CHEM 124		1
MATH 238	General Calculus II	3
HUM 102		3
Physical Education: GUR Elective		1
Term Credits		15

Second Year

1st Semester

BIOL 205	Foundations of Biology: Ecology and Evolution Lecture	3
BIOL 206	Foundations of Biology: Ecology and Evolution Lab	1
CHEM 243	Organic Chemistry I	3
PHYS 102	General Physics I	3
PHYS 102A	General Physics I Lab	1
HIST 213	The Twentieth-Century World	3
Physical Education: GUR Elective		1
Term Credits		15

2nd Semester

Biology Cluster Elective		3
CHEM 244	Organic Chemistry II	3
CHEM 244A	Organic Chemistry I Laboratory	2
PHYS 103	General Physics II	3
PHYS 103A	General Physics II Lab	1

Social Science: GUR Elective		3
Term Credits		15
Third Year		
1st Semester		
Biology Functional Laboratory Elective		3
Biology Cluster Elective		3
Management: GUR Elective		3
IE 447	Legal Aspects of Engineering	3
Legal Foundations Elective		3
Term Credits		15
2nd Semester		
Biology Laboratory Elective		3
Biology Elective		3
HIST 378	Medicine and Health Law in Modern America	3
Social Science: GUR Elective		3
Legal Foundations Elective		3
Free Elective		3
Term Credits		18
Fourth Year		
1st Semester		
Biology Laboratory Elective		3
Biology Elective		3
HIST 310	Co-op in Law, Technology, Culture and History I	3
HSS 404	Humanities, History and Social Sciences Senior Seminar ((LTC Section))	3
Legal Foundations Elective		3
Term Credits		15
2nd Semester		
Biology Elective		3
HIST 375 or EVSC 335	Legal Issues in Environmental History or Environmental Law	3
IT 400 or IT 331 or IT 332	Information Technology and the Law or Privacy and Information Technology or Digital Crime	3
Free Elective		3
Free Elective		3
Term Credits		15
Total Credits		124

B.S. Double Major in Biology & Law, Technology and Culture

(128 credits minimum)

First Year		
1st Semester		
BIOL 200	Concepts in Biology	4
CHEM 121 or CHEM 125	Fundamentals of Chemical Principles I or General Chemistry I	3
MATH 111	Calculus I	4
HUM 101		3
BNFO 135	Programming for Bioinformatics	3
FRSH SEM		0
Term Credits		17
2nd Semester		
R120 201	Foundations Of Biology	3

R120 202	Foundations Of Biology Lab	1
CHEM 122 or CHEM 126	Fundamentals of Chemical Principles II or General Chemistry II	3
MATH 112	Calculus II	4
CHEM 124		1
HUM 102		3
Physical Education: GUR Elective		1
Term Credits		16

Second Year**1st Semester**

BIOL 205	Foundations of Biology: Ecology and Evolution Lecture	3
BIOL 206	Foundations of Biology: Ecology and Evolution Lab	1
CHEM 243	Organic Chemistry I	3
PHYS 111	Physics I	3
PHYS 111A	Physics I Lab	1
MATH 211	Calculus III A	3
BNFO 236	Programming for Bioinformatics II	3
Term Credits		17

2nd Semester

CHEM 244	Organic Chemistry II	3
CHEM 244A	Organic Chemistry I Laboratory	2
PHYS 121	Physics II	3
PHYS 121A	Physics II Lab	1
Math Elective		3-4
MGMT 290	Business Law I	3
Physical Education: GUR Elective		1
Term Credits		16-17

Third Year**1st Semester**

Biology Functional Laboratory Elective		4
Biology Cluster Elective		3
MATH 333	Probability and Statistics	3
HIST 213	The Twentieth-Century World	3
Legal Foundations Elective		3
Term Credits		16

2nd Semester

Biology Laboratory Elective		3
Biology Cluster Elective		4
HIST 378	Medicine and Health Law in Modern America	3
IE 447	Legal Aspects of Engineering	3
MGMT 390	Principles of Business	3
Term Credits		16

Fourth Year**1st Semester**

Biology Laboratory Elective		3
Biology Cluster Elective		3
HIST 310	Co-op in Law, Technology, Culture and History I	3
IT 400 or IT 331 or IT 332	Information Technology and the Law or Privacy and Information Technology or Digital Crime	3
Legal Foundations Elective		3
Term Credits		15

2nd Semester

Biology Elective		3
Biology Elective		3
Legal Foundations Elective		3
HSS 404	Humanities, History and Social Sciences Senior Seminar ((LTC Section))	3
HIST 375 or EVSC 335	Legal Issues in Environmental History or Environmental Law	3
Term Credits		15
Total Credits		128-129

B.S. Double Major in Chemistry & Law, Technology and Culture

(125 credits minimum)

First Year

1st Semester		Credits
CHEM 121 or CHEM 125	Fundamentals of Chemical Principles I or General Chemistry I	3
CHEM 125A	General Chemistry Lab I	1
CS 113 or BNFO 135	Introduction to Computer Science I or Programming for Bioinformatics	3
HUM 101		3
MATH 111	Calculus I	4
PHYS 111	Physics I	3
PHYS 111A	Physics I Lab	1
FRSH SEM		0
Term Credits		18
2nd Semester		
CHEM 122 or CHEM 126	Fundamentals of Chemical Principles II or General Chemistry II	3
CHEM 124		1
MATH 112	Calculus II	4
PHYS 121	Physics II	3
PHYS 121A	Physics II Lab	1
HUM 102		3
Physical Education: GUR Elective		1
Term Credits		16

Second Year

1st Semester		
CHEM 221	Analytical Chemical Methods	2
CHEM 222	Analytical Chemistry	3
CHEM 243	Organic Chemistry I	3
MATH 211	Calculus III A	3
HIST 213	The Twentieth-Century World	3
Physical Education: GUR Elective		1
Term Credits		15
2nd Semester		
CHEM 231	Physical Chemistry I	3
CHEM 244	Organic Chemistry II	3
CHEM 244A	Organic Chemistry I Laboratory	2
EPS 202	Society, Technology, and the Environment	3
MGMT 290	Business Law I	3

IT 400 or IT 331 or IT 332	Information Technology and the Law or Privacy and Information Technology or Digital Crime	3
Term Credits		17
Third Year		
1st Semester		
CHEM 235	Physical Chemistry II	3
ECON 201	Economics	3
Legal Foundations Elective		3
IE 447	Legal Aspects of Engineering	3
HIST 375 or EVSC 335	Legal Issues in Environmental History or Environmental Law	3
Term Credits		15
2nd Semester		
CHEM 340	Chemistry of Materials	3
CHEM 336	Quantum Chemistry	3
CHEM 235A	Physical Chemistry II Laboratory	2
MATH 225	Survey of Probability and Statistics	1
Legal Foundations Elective		3
HIST 378	Medicine and Health Law in Modern America	3
Term Credits		15
Fourth Year		
1st Semester		
CHEM 473	Biochemistry	3
CHEM 412 or R160 413	Inorganic Chemistry or Inorganic Chemistry	3
HIST 310	Co-op in Law, Technology, Culture and History I	3
Technical Elective		3
Technical Elective		3
Term Credits		15
2nd Semester		
CHEM 480	Instrumental Analysis	2
HSS 404	Humanities, History and Social Sciences Senior Seminar ((LTC Section))	3
Management: GUR Elective		3
Technical Elective		3
Technical Elective		3
Term Credits		14
Total Credits		125

B.S. Double Major in Physics & Law, Technology and Culture - Astronomy Option

(127 credits minimum)

		Credits
First Year		
1st Semester		
HUM 101		3
PHYS 111	Physics I	3
PHYS 111A	Physics I Lab	1
MATH 111	Calculus I	4
CS 113 or CS 115	Introduction to Computer Science I or Introduction to Computer Science I in C++	3
CHEM 121 or CHEM 125	Fundamentals of Chemical Principles I or General Chemistry I	3

FRSH SEM		0
	Term Credits	17
2nd Semester		
PHYS 114	Introduction to Data Reduction with Applications	3
PHYS 121	Physics II	3
PHYS 121A	Physics II Lab	1
MATH 112	Calculus II	4
CHEM 122 or CHEM 126	Fundamentals of Chemical Principles II or General Chemistry II	3
CHEM 124		1
Physical Education: GUR Elective		1
	Term Credits	16
Second Year		
1st Semester		
MATH 211	Calculus III A	3
MATH 225A	Survey of Probability and Statistics	1
PHYS 234	Physics III	3
PHYS 231A	Physics III Lab	1
HIST 213	The Twentieth-Century World	3
HUM 102		3
Physical Education: GUR Elective		1
	Term Credits	15
2nd Semester		
MATH 222	Differential Equations	4
MATH 328	Mathematical Methods for Scientists and Engineers	3
PHYS 335	Introductory Thermodynamics	3
Legal Foundations Elective		3
Legal Foundations Elective		3
	Term Credits	16
Third Year		
1st Semester		
PHYS 418	Fundamentals of Optical Imaging	3
PHYS 432	Electromagnetism I	3
PHYS 320	Astronomy and Astrophysics I	3
PHYS 430	Classical Mechanics I	3
Legal Foundations Elective		3
	Term Credits	15
2nd Semester		
PHYS 433	Electromagnetism II	3
PHYS 321	Astronomy and Astrophysics II	3
Math Elective		3
HSS 404	Humanities, History and Social Sciences Senior Seminar ((LTC Section))	3
IT 400 or IT 331 or IT 332	Information Technology and the Law or Privacy and Information Technology or Digital Crime	3
HIST 310	Co-op in Law, Technology, Culture and History I	3
	Term Credits	18
Fourth Year		
1st Semester		
PHYS 420	Special Relativity	3
PHYS 442	Introduction to Quantum Mechanics	3
Elective (Math/Physics/Computer Science)		3

IE 447	Legal Aspects of Engineering	3
Management: GUR Elective		3
Term Credits		15
2nd Semester		
PHYS 322	Observational Astronomy	3
PHYS 421	General Relativity	3
PHYS 450	Advanced Physics Lab	3
HIST 378	Medicine and Health Law in Modern America	3
HIST 375 or EVSC 335	Legal Issues in Environmental History or Environmental Law	3
Term Credits		15
Total Credits		127

B.S. Double Major in Physics & Law, Technology and Culture - Optical Science & Engineering Option

(127 credits minimum)

First Year

1st Semester		Credits
HUM 101		3
PHYS 111	Physics I	3
PHYS 111A	Physics I Lab	1
MATH 111	Calculus I	4
CS 113 or CS 115	Introduction to Computer Science I or Introduction to Computer Science I in C++	3
CHEM 121 or CHEM 125	Fundamentals of Chemical Principles I or General Chemistry I	3
FRSH SEM		0
Term Credits		17

2nd Semester

PHYS 114	Introduction to Data Reduction with Applications	3
PHYS 121	Physics II	3
PHYS 121A	Physics II Lab	1
MATH 112	Calculus II	4
CHEM 122 or CHEM 126	Fundamentals of Chemical Principles II or General Chemistry II	3
CHEM 124		1
Physical Education: GUR Elective		1
Term Credits		16

Second Year

1st Semester		Credits
MATH 211	Calculus III A	3
MATH 225A	Survey of Probability and Statistics	1
PHYS 234	Physics III	3
PHYS 231A	Physics III Lab	1
HUM 102		3
Legal Foundations Elective		3
Physical Education: GUR Elective		1
Term Credits		15
2nd Semester		
MATH 222	Differential Equations	4
MATH 328	Mathematical Methods for Scientists and Engineers	3
PHYS 335	Introductory Thermodynamics	3

Legal Foundations Elective		3
HIST 213	The Twentieth-Century World	3
Term Credits		16
Third Year		
1st Semester		
OPSE 301	Introduction to Optical Science and Engineering	3
PHYS 418	Fundamentals of Optical Imaging	3
PHYS 430	Classical Mechanics I	3
PHYS 432	Electromagnetism I	3
HIST 310	Co-op in Law, Technology, Culture and History I	3
Term Credits		15
2nd Semester		
PHYS 433	Electromagnetism II	3
PHYS 446	Solid State Physics	3
OPSE 402	High Power Laser and Photonics Applications	3
Legal Foundations Elective		3
HIST 378	Medicine and Health Law in Modern America	3
Elective (Physics/OPSE)		3
Term Credits		18
Fourth Year		
1st Semester		
PHYS 442	Introduction to Quantum Mechanics	3
IT 400	Information Technology and the Law	3
or IT 331	or Privacy and Information Technology	
or IT 332	or Digital Crime	
Management: GUR Elective		3
HIST 375	Legal Issues in Environmental History	3
or EVSC 335	or Environmental Law	
Elective (Physics/OPSE/EE)		3
Term Credits		15
2nd Semester		
OPSE 610	Virtual Instrumentation	3
PHYS 450	Advanced Physics Lab	3
Elective (Physics/EE)		3
IE 447	Legal Aspects of Engineering	3
HSS 404	Humanities, History and Social Sciences Senior Seminar (LTC Section)	3
Term Credits		15
Total Credits		127

This curriculum represents the maximum number of credits per semester for which a student is advised to register. A full-time credit load is 12 credits.

First-year students are placed in a curriculum that positions them for success which may result in additional time needed to complete curriculum requirements. Continuing students should consult with their academic advisor to determine the appropriate credit load.