

# General University Requirements

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## Philosophy

New Jersey Institute of Technology (NJIT) is dedicated to producing graduates who have the knowledge, skills and motivation necessary to advance the state-of-the-art knowledge in their respective fields. Graduates must understand the complexities of contemporary society and have a deep understanding of and appreciation for science and technology and the ethical and societal issues involved in their pursuit. A fundamental guiding principle in the development of the General University Requirements (GUR) is the formulation of a foundational curriculum encompassing the necessary preconditions for success in undergraduate disciplines, a curriculum that establishes a devotion to lifetime intellectual discovery and personal development. In a larger sense, the GUR are intended to provide an educational grounding for our students, a set of educational experiences harmoniously attuned to the mission of NJIT and its responsibilities to its constituents. In essence, the completion of the GUR is a necessary step in the fulfillment of the implicit intellectual and social contract that NJIT has with its students and its local, national and global communities.

## Computing Sciences

An understanding of the nature of computing, its impact on society and the driving forces behind its pervasive deployment is integral to effective functioning as a professional and as a citizen. Each student should learn to use software and computing systems and to access, store, process and analyze information as an essential aspect of critical thinking and problem solving. Depending on the discipline, the student should also develop an ability to design algorithms, to write programs, and to use software tools.

## Cultural History

All educated individuals are expected to understand and appreciate history and the world's cultures.

## English

The ability to communicate ideas is an essential characteristic of educated individuals. All students are expected to achieve proficiency in both oral and written English.

## Humanities

The ideals of a liberal education transcend particular major fields and career goals. All students are expected to develop an interest in specific areas within the humanities.

## Management

All students are expected to develop the management skills needed to function effectively in an organizational setting.

## Mathematics

The ability to reason qualitatively and quantitatively, to understand probability, and to apply mathematical models to a variety of circumstances is fundamental to making informed decisions in the modern world. Depending on the discipline, the student should also be able to apply appropriate mathematical concepts and methods to the solution of problems in their professional domain.

## Natural Sciences

The natural sciences provide the basis for our knowledge of the physical universe and for technological progress. All students are expected to develop a thorough understanding of at least one laboratory science.

## Physical Education

Physical education conveys to students the importance of good health and fitness through planned exercise and recreational activities.

## Social Sciences

An understanding of the social sciences is essential in order to understand the economic, social, and political forces at work in our world.

## Specific General University Requirements

Courses that satisfy the General University Requirements are so certified by the Committee on Undergraduate Education at the time they are first approved to be offered.

Each college or department may set additional requirements that exceed the GUR.

All first-time, full-time freshman students are required to attend FRSH SEM Freshman Seminar. This course assists students in adjusting to the academic program and introduces them to university life.

## Computing Sciences

At least three (3) credits in an introductory course in the computing sciences.

CS 100	Roadmap to Computing	3
CS 101	Computer Programming and Problem Solving	3
CS 103	Computer Science with Business Problems	3
CS 104	Computer Programming and Graphics Problems	3
CS 113	Introduction to Computer Science	3
CS 115	Intro. to CS I in C++	3

**Total Credits** **3**

## English Composition and Cultural History (lower-level)

### English Composition

HUM 101	English Composition: Writing, Speaking, Thinking I	3
HUM 102	English Composition: Writing, Speaking, Thinking II	3

### Cultural History

Select at least one of the following: 3

HIST 213	The Twentieth-Century World	
HIST 214	Tech & Cult in Amer History	
HUM 211	The Pre-Modern World	
HUM 212	The Modern World	
R510 2XX	History course at Rutgers-Newark	
R512 2XX	American History course at Rutgers-Newark	

**Total Credits** **9**

## Humanities and Social Sciences Electives (upper-level)

### LIT, HIST, PHIL, STS

Select one of the following: 3

LIT 3XX	Literature course	
HIST 3XX	History course	
PHIL 3XX	Philosophy course	
STS 3XX	Science, Technology and Society course	
R350 3XX	English Literature course at Rutgers-Newark	
R350 4XX	English Literature course at Rutgers-Newark	
R352 3XX	American Literature course at Rutgers-Newark	
R352 4XX	American Literature course at Rutgers-Newark	
R510 3XX	History course at Rutgers-Newark	
R510 4XX	History course at Rutgers-Newark	
R512 3XX	American History course at Rutgers-Newark	
R512 4XX	American History course at Rutgers-Newark	
R730 3XX	Philosophy course at Rutgers-Newark	
R730 4XX	Philosophy course at Rutgers-Newark	

### OPEN GUR

Select one of the following: 3

COM 3XX	Communication course	
ENG 3XX	English course	
HIST 3XX	History course	
LIT 3XX	Literature course	
PHIL 3XX	Philosophy course	
STS 3XX	Science, Technology and Society course	
HSS 3XX	Social science course	
THTR 3XX	Theatre course	

R070 3XX	Anthropology course at Rutgers-Newark	
R080 3XX	Art course at Rutgers-Newark	
R081 3XX	Course at Rutgers-Newark	
R202 3XX	Criminal justice course at Rutgers-Newark	
R220 3XX	Economics course at Rutgers-Newark	
R350 3XX	English course at Rutgers-Newark	
R352 3XX	English, American Literature course at Rutgers-Newark	
R420 3XX	French course at Rutgers-Newark	
R510 3XX	History course at Rutgers-Newark	
R512 3XX	American History course at Rutgers-Newark	
R560 3XX	Italian course at Rutgers-Newark	
R570 3XX	Journalism, Media & Writing course at Rutgers-Newark	
R700 3XX	Music course at Rutgers-Newark	
R701 3XX	Applied Music course at Rutgers-Newark	
R370 3XX	Entomology course at Rutgers-Newark	
R790 3XX	Political Science course at Rutgers-Newark	
R810 3XX	Portuguese course at Rutgers-Newark	
R830 3XX	Psychology course at Rutgers-Newark	
R861 3XX	Course at Rutgers-Newark	
R920 3XX	Sociology course at Rutgers-Newark	
R940 3XX	Spanish course at Rutgers-Newark	
R965 3XX	Theatre Arts course at Rutgers-Newark	
R988 3XX	Women's Studies course at Rutgers-Newark	

**HSS CAPSTONE**

Select one of the following:		3
HSS 403	Humanities Senior Seminar - Literature	
HSS 404	Humanities Senior Seminar - History	
HSS 405	Humanities Senior Seminar - Philosophy	
HSS 406	Humanities Senior Seminar - English	
HSS 407	Humanities Senior Seminar - Theater	
HSS 408	Humanities Senior Seminar - Science, Technology, and Society	
HSS 491	Honors Sem In Humanities	

**Total Credits** **9**

No more than three (3) of the nine required credits in this category may be fulfilled with a course that is specifically required by a student's degree program or college.

**Management**

HRM 301	Organizational Behavior <sup>1</sup>	3
MGMT 390	Principles of Management	3
ENTR 410	New Venture Management	3
IE 492	Engineering Management	3

**Total Credits** **3**

<sup>1</sup> Students in the aerospace option take AS 333 Leadership and Management and those in the dual degree program between architecture and management take HRM 301 Organizational Behavior.

**Mathematics**

MATH courses		5
Select one of the following:		1-4
MATH 105	Elementary Probability and Statistics	
MATH 114	Finite Mathematics and Calculus II	
MATH 120	Basic Concepts in Statistics	

MATH 225	Survey of Probability and Statistics
MATH 244	Introduction to Probability Theory
MATH 279	Statistics and Probability for Engineers
MATH 305	Statistics for Technology
MATH 333	Probability and Statistics
IE 331	Applied Statistical Methods
ECE 321	Random Signals and Noise
MNET 315	Industrial Statistics

**Total Credits****6-9****Natural Sciences**

At least seven (7) credits in natural sciences, including a laboratory experience.

**Biology Courses**

R120 101	General Biology	4
R120 102	General Biology	4
R120 109	Basic Plant Science	3
R120 110	Basic Plant Sci Lab	1
R120 205	Environmental Issues	3
R120 206	General Horticulture	3
R120 207	Horticulture Lab	1
R120 208	Human Sexuality	3
R120 237	Environmental Microbiology	4
R120 241	Anatomy & Physiology	4
R120 242	Anatomy & Physiology	4

**Chemistry Courses**

CHEM 122	Fundamentals of Chemical Principles II	3
CHEM 124	General Chemistry Laboratory	1
CHEM 125	General Chemistry I	3
CHEM 125A	General Chemistry Lab I	1
CHEM 126	General Chemistry II	3
CHEM 126A	Gen Chemistry Lab II	1

**Physics Courses**

PHYS 102	General Physics	3
PHYS 102A	General Physics Laboratory	1
PHYS 103	General Physics	3
PHYS 103A	General Physics Laboratory	1
PHYS 111	Physics I	3
PHYS 111A	Physics I Laboratory	1
PHYS 121	Physics II	3
PHYS 121A	Physics II Laboratory	1
PHYS 202	Introductory Astronomy and Cosmology	3
PHYS 202A	Astronomy and Cosmology Laboratory	1
PHYS 203	The Earth in Space	3
PHYS 203A	The Earth in Space Laboratory	1
PHYS 204	Biophysics of Life	3

**Geology Courses**

R460 101	Intro To The Earth	3
R460 103	Planet Earth	3
R460 104	Planet Earth Lab	1
R460 206	Env Geology	3

R460 207	Env Geology Lab	1
<b>Total Credits</b>		<b>13</b>

## Physical Education

At least two (2) credits in physical education. Students who register as full time undergraduates for two or more consecutive semesters must take two PE courses.

PE XXX	Physical Education course	1
PE 1XX	Physical Education fitness core course	1
<b>Total Credits</b>		<b>2</b>

## Social Sciences (lower-level)

Select two of the following: 6

ECON 201	Economics	
ECON 265	Microeconomics	
or R220 101	Intro To Econo-Micro	
ECON 266	Macroeconomics	
or R220 102	Intro To Econ-Macro	
EPS 202	Society, Technology, and the Environment	
STS 201	Understanding Technological Society	
STS 210	General Psychology	
STS 221	Sociology	
R070 203	Intro Phys Anth & Arch	
R070 204	Intro Cultural Anthro	
R202 201	Intro Criminal Justice	
R790 201	American Government	
R790 202	America & The World	
R830 101	Principles Of Psychology I	
R830 102	Prin Of Psychology	
R920 201	Intro Sociology I	
R920 202	Sociology II	
<b>Total Credits</b>		<b>6</b>