

# B.A. in Information Systems

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(120 credits minimum)

## First Year

1st Semester		Credits
CS 100	Roadmap to Computing	3
ENGL 101	English Composition: Introduction to Academic Writing	3
MATH 138	General Calculus I <sup>1</sup>	3
Natural Science GER ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/natural-science-ger/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/natural-science-ger/</a> )		3
IS 117	Introduction to Website Development	3
FYS SEM	First-Year Student Seminar	0
<b>Term Credits</b>		<b>15</b>

## 2nd Semester

ENGL 102	English Composition: Introduction to Writing for Research	3
IS 218	Building Web Applications	3
IS 265	Introduction to Information Systems	3
IS 247	Designing the User Experience	3
Natural Science GER with Lab ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/natural-science-ger/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/natural-science-ger/</a> )		4
<b>Term Credits</b>		<b>16</b>

## Second Year

### 1st Semester

IS 350	Computers, Society and Ethics	3
MATH 105	Elementary Probability and Statistics <sup>1</sup>	3
IT 120	Introduction to Network Technology	3
Select one of the following:		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> ) <sup>2</sup>		
PSY 210	Introduction to Psychology <sup>3</sup>	3
Select one of the following:		3
ECON 201	Economics	
General Elective 1 <sup>3</sup>		
<b>Term Credits</b>		<b>15</b>

### 2nd Semester

YWCC 207	Computing & Effective Com	1
IS 344	Computing Applications in Business	3
IS 375	Discovering User Needs for UX	3
IS Career Track Elective 1 <sup>4</sup>		3
General Elective 1 or 2		3
New Media or Business Specialization Elective 1 <sup>5</sup>		3
<b>Term Credits</b>		<b>16</b>

## Third Year

### 1st Semester

IS 331	Database Design Management and Applications	3
General Elective 2 or 3 <sup>6</sup>		3
IS 390	Requirements Analysis and Systems Design	3
COM 312	Oral Presentations	3
or COM 313	or Technical Writing	
New Media or Business Specialization Elective 2 <sup>5</sup>		3
<b>Term Credits</b>		<b>15</b>

**2nd Semester**

New Media or Business Specialization Elective 3 <sup>5</sup>		3
IS Career Track Elective 2 <sup>4</sup>		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
General Elective 3 or 4 <sup>6</sup>		3
General Elective 4 or 5 <sup>6</sup>		3
YWCC 307	Professional Dev in Computing	1
<b>Term Credits</b>		<b>16</b>

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

IS 455	IS Mgmt & Business Processes	3
IE 492 or ENTR 210	Engineering Management or Introduction to Entrepreneurship	3
New Media or Business Specialization Elective 4 <sup>5</sup>		3
IS Career Track Elective 3 <sup>4</sup>		3
Humanities and Social Science Senior Seminar GER ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/</a> )		3
<b>Term Credits</b>		<b>15</b>

**2nd Semester**

IS 465	Advanced Information Systems	3
Select one of the following:		3
IT 491	IT Capstone Project	
IS 491	Senior Project - IS	
New Media or Business Elective 5 <sup>5</sup>		3
General Elective 5 <sup>6</sup>		3
<b>Term Credits</b>		<b>12</b>
<b>Total Credits</b>		<b>120</b>

<sup>1</sup> Student can also take MATH 111 (Calculus I) or MATH 101 (Foundations of Mathematics for the Liberal Arts) instead of MATH 138.

**Math:** MATH 111 Calculus I and MATH 333 Probability and Statistics are highly recommended to replace MATH 138 General Calculus I and MATH 105 Elementary Probability and Statistics, particularly for students contemplating advanced or graduate work in computing. These students also are encouraged to take MATH 112 Calculus II and one or more advanced statistics courses as free electives, such as MATH 341 Statistical Methods II or MATH 344 Regression Analysis both of which require MATH 333 Probability and Statistics as a prerequisite.

<sup>2</sup> For Business Specialization

<sup>3</sup> For New Media Specialization

<sup>4</sup> **Career Track Electives.** Students are strongly encouraged (but not required) to take 3-4 courses from one of the following Career Tracks, which focus on a particular specialty within the field of Information Systems. Note: Qualified students should consider the BA/MS or BA/PhD program, which allows undergraduates to start on a graduate degree as part of their undergraduate requirements. See the Office of Graduate Studies for more information. Consult your Academic Advisor for further details.

<sup>5</sup> **Business and User Experience Specialization Electives:** You must complete an entire set of either 5 approved business electives or 5 approved user experience electives.

<sup>6</sup> **Independent Study (optionally leading to the Undergraduate Thesis Option):** We encourage you to consider an independent study (IS 488) as part of your electives as juniors and seniors. You could then continue with an Undergraduate Thesis (IS 489), which optionally can substitute for IS 491 or IT 491. The thesis option is explained further on the Informatics Department web site. Please consult your advisor as early in your studies as possible to plan appropriately for all of these opportunities.

**Recommended Business Specialization Electives**

Five courses are needed to fulfill the requirements of this Specialization. Students completing his Specialization interested in minoring in Business should check with the School of Management for any additional requirements.

Code	Title	Credits
ACCT 117	Principles Of Fin Accountng	3
MGMT 190	Introduction to Business	3
FIN 315	Fundamentals of Corporate Finance	3

MRKT 330	Principles of Marketing	3
Select one of the following:		3
MRKT 360	Digital Marketing	
HRM 301	Organizational Behavior	
MGMT 492	Business Policy	

**Total Credits** **15**

## Recommended New Media Specialization Electives

Choose 5 courses from the following to fulfill the requirements for the Specialization. Students taking the New Media specialization have taken most of the courses for a minor in Professional Communications. Check with the Humanities Department to determine current options for electives to complete this minor, if you are interested.

Code	Title	Credits
COM 200	Communicating in Organizations	3
COM 355	Cybertext	3
COM 353	Composing Documents for Print	3
COM 354	Composing Documents for the Web	3
COM 303	Video Narrative	3
COM 337	Photojournalism	3
COM 390	Electronic Writing Workshop	3

**Total Credits** **21**

## Recommended Career Track Electives

Students are strongly encouraged (but not required) to take 3-4 courses from one of the following Career Tracks, which focus on a particular specialty within the field of Information Systems. Note: Qualified students should consider the BA/MS or BA/PhD program, which allows undergraduates to start on a graduate degree as part of their undergraduate requirements. See the Office of Graduate Studies for more information. Consult your Academic Advisor for further details.

### Database

Code	Title	Credits
IS 392	Web Mining and Information Retrieval	3
IT 310	E-Commerce Technology	3
IS 631	Enterprise Database Management	3
IS 634	Information Retrieval	3
IS 687	Transaction Mining and Fraud Detection	3
CS 434	Advanced Database Systems	3
CS 441	Database Programming	3

### Networks

Code	Title	Credits
IS 448	Usability & Measuring UX	3
CS 357	Fundamentals of Network Security	3
CS 408	Cryptography and Internet Security	3
CS 458	Technologies-Network Security	3
IT 202	Internet Applications	3
IT 220	Wireless Networks	3
IT 230	Computer and Network Security	3
IT 420	Computer Systems and Networks	3

## Management of Information Systems

Code	Title	Credits
IS 392	Web Mining and Information Retrieval	3
IT 310	E-Commerce Technology	3
IS 461	Systems Simulation	3

IS 677	Information System Principles	3
IS 678	IT Service Management	3
IS 680	Information Systems Auditing	3
IS 681	Computer Security Auditing	3
IS 687	Transaction Mining and Fraud Detection	3
IT 332	Digital Crime	3
IT 430	Ethical Hacking for System Administrators	3

### Medical Informatics (Healthcare Information Systems)

Code	Title	Credits
For an IS Career Track in Medical Informatics, the student must complete both:		
CPT 325	Medical Informatics Technology	3
CPT 425	Medical Informatics Technology II	3
Select two of the following:		6
IS 392	Web Mining and Information Retrieval	
IS 448	Usability & Measuring UX	
IS 661	User Experience Design	
IT 220	Wireless Networks	
CS 370	Introduction to Artificial Intelligence	

### Systems Analysis & Design

Code	Title	Credits
IS 373	Content Management Systems	3
IS 461	Systems Simulation	3
IS 663	System Analysis and Design	3
IS 685	Enterprise Architecture and Integration	3
CS 280	Programming Language Concepts	3
CS 288	Intensive Programming in Linux	3
CS 433	Introduction to Linux Kernel Programming	3
CS 490	Guided Design in Software Engineering	3
IT 335	Introduction to .NET Framework	3
IT 340	Introduction to System Administration	3
IT 490	Systems Integration	3

### Intelligence & Decision Support

Code	Title	Credits
IS 392	Web Mining and Information Retrieval	3
IT 310	E-Commerce Technology	3
IS 461	Systems Simulation	3
CS 370	Introduction to Artificial Intelligence	3
CS 434	Advanced Database Systems	3
IT 380	Educational Software Design	3

### Web Systems

Code	Title	Credits
IS 117	Introduction to Website Development	3
IS 218	Building Web Applications	3
IS 322	Mobile Applications: Design, Interface, Implementation	3
IS 373	Content Management Systems	3
IS 392	Web Mining and Information Retrieval	3
IS 421	Advanced Web Applications	3
IT 310	E-Commerce Technology	3
IS 448	Usability & Measuring UX	3

IS 683	Web Systems Development	3
IS 688	Web Mining	3
IS 690	Web Services and Middleware	3
IT 202	Internet Applications	3
IT 302	Advanced Internet Applications	3

### Information Systems Security, Auditing and Crisis Response

Code	Title	Credits
IS 681	Computer Security Auditing	3
IS 687	Transaction Mining and Fraud Detection	3
CS 357	Fundamentals of Network Security	3
CS 408	Cryptography and Internet Security	3
CS 458	Technologies-Network Security	3
IT 230	Computer and Network Security	3
IT 330	Computer Forensic	3
IT 331	Privacy and Information Technology	3
IT 332	Digital Crime	3
IT 430	Ethical Hacking for System Administrators	3

### Human-Computer Interaction

Code	Title	Credits
IS 448	Usability & Measuring UX	3
IS 661	User Experience Design	3
IS 764	Research Methods for Human-Centered Computing and Design	3
IT 265	Game Architecture and Design	3
IT 201	Information Design Techniques	3
IT 266	Game Modification Development	3
or CS 266	Game Modification Development	

### Build Your Own Career Track

Students may construct a career track of 3-4 electives in consultation with their advisor.

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

*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.*