

## PROGRAM SUMMARY

- **Credit Hours:** 120 hours
- **Concentrations:** AI, Robotics & Gaming; Data Science; and Software, Systems & Networks
  - See separate Academic Plan of Study for concentrations in Cyber Security; Software Engineering; and Web & Mobile Applications (SIS Department); and Bioinformatics (BINF Department)
- **Declaring the Major:** Minimum GPA of 2.5 required; no pre-requisite courses; change of major form accepted year-round; advising session required after declaration
- **Advising (For the Major):** Required on admission to the major and before each semester, assigned advisors available by appointment
- **Advising (For General Education):** Required on admission to the major and before each semester, assigned advisors available by appointment
- **Minimum Grades/GPA:** GPA of 2.0 in the major required for graduation
- **Teacher Licensure:** No
- **Evening Classes Available:** Some
- **Weekend Classes Available:** No
- **Other Information:** Freshman Learning Community, CCI Honors, Internships, Co-ops, Graduate Early Entry
- **Contact(s):** For the concentrations AI, Robotics & Gaming; Data Science; or Software, Systems & Networks: James Frazier, Assistant Chair and Undergraduate Coordinator, Department of Computer Science, 704-687-8557, [jfrazier2@uncc.edu](mailto:jfrazier2@uncc.edu), Woodward Hall 410-B.

## PROGRAM REQUIREMENTS

The B.S. in Computer Science is a relatively structured degree with seven (7) different concentrations. The degree has 25 hours of core Computer Science courses, a series of courses to choose from as major electives, and 9-15 semester hours of related work in a discipline outside computer science, possibly forming a minor in that discipline area. The program begins with a series of courses that are generally prerequisites for upper level courses. Due to the large number of major requirements it is recommended that students declare the major in their freshman year and the concentration in their sophomore year to complete their degree on time.

Areas	Credit Hours	Description
<b>Pre-Major/ Prerequisites</b>	-	
<b>Major</b>	70-76	Computer Science Core 25 hours – ITSC 1212/L, 1213/L, 1600, 2175, 2214, 3146, 3155, 3181/L; Computer Science Concentration one of seven concentration areas: AI, Robotics & Gaming; Bioinformatics; Cyber Security; Data Science; Software, Systems & Networks; Software Engineering; Web & Mobile Applications; Major Electives 0-6 hours depending on concentration – Must be at the 3000 level or above and in the College of Computing and Informatics; Capstone 3 hours. Communication - ENGL 2116, ITCS 3688, PHIL 1106; Analytic - MATH 1241, 1242, 2164, and STAT 2122.
<b>General Education (not satisfied by other major requirements)</b>	25-28	UWRT 1101 and 1102 (or UWRT 1103); 7 hours of approved natural sciences with one lab; 3 hours of approved social sciences; LBST 1101, 1102, 1103, 1104 or 1105; LBST 2101 and 2102; ITIS 2211 (fulfills the LBST 221X requirement).
<b>Related Work</b>	9-15	May be satisfied by a second major, a minor, or a set of coordinated courses developed through consultation with an advisor.
<b>Foreign Language</b>	-	
<b>Electives</b>	1-11	Varies depending on concentration
<b>Total Credit Hours</b>	120	

## SUGGESTED PLAN OF STUDY – CONCENTRATION: AI, ROBOTICS & GAMING

### Freshman Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ITSC 1600	Computing Professionals	1			
ITSC 1212+L	Introduction to Computer Science I (with Lab)	4			
MATH 1241	Calculus I	3	X		
UWRT 1101	Writing and Inquiry in Academic Contexts I	3	X		
XXXX XXXX	Natural Science with Lab (General Education Requirement)	4	X		
<i>Spring Semester</i>					
ITCS 1213+L	Introduction to Computer Science II (with Lab)	4			
MATH 1242	Calculus II	3	X		
UWRT 1102	Writing and Inquiry in Academic Contexts II	3	X		
PHIL 1106	Critical Thinking	3			
LBST 110X	LBST 1100 Series: Arts and Society	3	X		

31 Credit Hours for Year

### Sophomore Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ITSC 2214	Data Structures and Algorithms	3			
STAT 2122	Introduction to Probability and Statistics	3			
LBST 2101	Western Cultural and Historical Awareness	3	X		
ENGL 2116	Introduction to Technical Communication	3	X	W	
XXXX XXXX	Social Science (General Education Requirement)	3	X		
<i>Spring Semester</i>					
ITSC 2175	Logic and Algorithms	3			
MATH 2164	Matrices and Linear Algebra	3			
LBST 2102	Global and Intercultural Connections	3	X		
XXXX XXXX	Natural Science (General Education Requirement)	3	X		
XXXX XXXX	Related Work (1 of 5)	3			

30 Credit Hours for Year

### Junior Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ITCS 3153	Intro to Artificial Intelligence	3			
ITSC 3181+L	Introduction to Computer Architecture (with Lab)	4			
ITSC 3155	Software Engineering	3			
XXXX XXXX	AIRG Concentration Elective (1 of 4)	3			
XXXX XXXX	Related Work (2 of 5)	3			
<i>Spring Semester</i>					
ITSC 3146	Operating Systems and Networking	3			
ITIS 2211	Ethical Issues in Personal, Professional, and Public Life	3	X		Fulfills LBST 22XX requirement
ITCS 3688	Computers and Their Impact on Society	3	X	W,O	Fulfills writing in the discipline
XXXX XXXX	AIRG Concentration Elective (2 of 4)	3			
XXXX XXXX	Related Work (3 of 5)	3			

31 Credit Hours for Year

### Senior Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
XXXX XXXX	Related Work (4 of 5)	3			
XXXX XXXX	AIRG Concentration Elective (3 of 4)	3			
XXXX XXXX	Technical Elective: ITCS/ITIS 3XXX or above (1 of 2)	3			
XXXX XXXX	Technical Elective: ITCS/ITIS 3XXX or above (2 of 2)	3			
XXXX XXXX	Free Elective	3			
<i>Spring Semester</i>					
ITCS 4XXX	Capstone ITCS 4155, 4232, 4238, 4650, 4651, 4990 or 4991	3			
XXXX XXXX	AIRG Concentration Elective (4 of 4)	3			
XXXX XXXX	Related Work (5 of 5)	3			
XXXX XXXX	Free Elective	3			
XXXX XXXX	Free Elective	1			

28 Credit Hours for Year

## ADVISING RESOURCES

- General Education Requirements for ALL Students: [ucol.uncc.edu/general-education](http://ucol.uncc.edu/general-education)
- Undergraduate Catalog: [catalog.uncc.edu](http://catalog.uncc.edu)
- Central Advising website: [advising.uncc.edu](http://advising.uncc.edu)
- College of Computing & Informatics advising website: [cci.uncc.edu/students/advising](http://cci.uncc.edu/students/advising)
- University Advising Center website: [advisingcenter.uncc.edu](http://advisingcenter.uncc.edu)

## SUGGESTED PLAN OF STUDY – CONCENTRATION: DATA SCIENCE

### Freshman Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ITSC 1600	Computing Professionals	1			
ITSC 1212+L	Introduction to Computer Science I (with Lab)	4			
MATH 1241	Calculus I	3	X		
UWRT 1101	Writing and Inquiry in Academic Contexts I	3	X		
XXXX XXXX	Natural Science with Lab (General Education Requirement)	4	X		
<i>Spring Semester</i>					
ITCS 1213+L	Introduction to Computer Science II (with Lab)	4			
MATH 1242	Calculus II	3	X		
UWRT 1102	Writing and Inquiry in Academic Contexts II	3	X		
PHIL 1106	Critical Thinking	3			
LBST 110X	LBST 1100 Series: Arts and Society	3	X		
					<b>31 Credit Hours for Year</b>

### Sophomore Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ITSC 2214	Data Structures and Algorithms	3			
STAT 2122	Introduction to Probability and Statistics	3			
LBST 2101	Western Cultural and Historical Awareness	3	X		
ENGL 2116	Introduction to Technical Communication	3	X	W	
XXXX XXXX	Social Science (General Education Requirement)	3	X		
<i>Spring Semester</i>					
ITSC 2175	Logic and Algorithms	3			
MATH 2164	Matrices and Linear Algebra	3			
LBST 2102	Global and Intercultural Connections	3	X		
XXXX XXXX	Natural Science (General Education Requirement)	3	X		
XXXX XXXX	Related Work (1 of 5)	3			
					<b>30 Credit Hours for Year</b>

### Junior Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ITSC 3181+L	Introduction to Computer Architecture (with Lab)	4			
ITSC 3155	Software Engineering	3			
ITCS 3160	Database Design and Implementation	3			
XXXX XXXX	DS Concentration Elective (1 of 3)	3			
XXXX XXXX	Related Work (2 of 5)	3			
<i>Spring Semester</i>					
ITSC 3146	Operating Systems and Networking	3			
ITIS 2211	Ethical Issues in Personal, Professional, and Public Life	3	X		Fulfills LBST 22XX requirement
ITCS 3688	Computers and Their Impact on Society	3	X	W,O	Fulfills writing in the discipline
ITCS 3162	Intro to Data Mining	3			
XXXX XXXX	Related Work (3 of 5)	3			
					<b>31 Credit Hours for Year</b>

### Senior Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
XXXX XXXX	DS Concentration Elective (2 of 3)	3			
XXXX XXXX	CCI Technical Elective: ITCS/ITIS 3XXX or above (1 of 2)	3			
XXXX XXXX	CCI Technical Elective: ITCS/ITIS 3XXX or above (2 of 2)	3			
XXXX XXXX	Related Work (4 of 5)	3			
XXXX XXXX	Free Elective	3			
<i>Spring Semester</i>					
ITCS 4XXX	CS Capstone: ITCS 4155, 4650, 4651, 4990, or 4991	3			
XXXX XXXX	DS Concentration Elective (3 of 3)	3			
XXXX XXXX	Related Work (5 of 5)	3			
XXXX XXXX	Free Elective	3			
XXXX XXXX	Free Elective	1			
					<b>28 Credit Hours for Year</b>

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- University Advising Center website: [advisingcenter.uncc.edu](http://advisingcenter.uncc.edu)

## SUGGESTED PLAN OF STUDY – CONCENTRATION: SOFTWARE, SYSTEMS & NETWORKS

### Freshman Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ITSC 1600	Computing Professionals	1			
ITSC 1212+L	Introduction to Computer Science I (with Lab)	4			
MATH 1241	Calculus I	3	X		
UWRT 1101	Writing and Inquiry in Academic Contexts I	3	X		
XXXX XXXX	Natural Science with Lab (General Education Requirement)	4	X		
<i>Spring Semester</i>					
ITCS 1213+L	Introduction to Computer Science II (with Lab)	4			
MATH 1242	Calculus II	3	X		
UWRT 1102	Writing and Inquiry in Academic Contexts II	3	X		
PHIL 1106	Critical Thinking	3			
LBST 110X	LBST 1100 Series: Arts and Society	3	X		
					<b>31 Credit Hours for Year</b>

### Sophomore Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ITSC 2214	Data Structures and Algorithms	3			
STAT 2122	Introduction to Probability and Statistics	3			
LBST 2101	Western Cultural and Historical Awareness	3	X		
ENGL 2116	Introduction to Technical Communication	3	X	W	
XXXX XXXX	Social Science (General Education Requirement)	3	X		
<i>Spring Semester</i>					
XXXX XXXX	Related Work (1 of 5)	3			
ITSC 2175	Logic and Algorithms	3			
MATH 2164	Matrices and Linear Algebra	3			
XXXX XXXX	Natural Science (General Education Requirement)	3	X		
LBST 2102	Global and Intercultural Connections	3	X		
					<b>30 Credit Hours for Year</b>

### Junior Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ITSC 3181+L	Introduction to Computer Architecture (with Lab)	4			
ITSC 3155	Software Engineering	3			
ITCS 3145	Parallel and Distributed Computing	3			
ITCS 3166	Intro to Computer Networks	3			
XXXX XXXX	Related Work (2 of 5)	3			
<i>Spring Semester</i>					
ITSC 3146	Operating Systems and Networking	3			
ITIS 2211	Ethical Issues in Personal, Professional, and Public Life	3	X		Fulfills LBST 22XX requirement
ITCS 3688	Computers and Their Impact on Society	3	X	W,O	Fulfills writing in the discipline
XXXX XXXX	SSN Concentration Elective (1 of 3)	3			
XXXX XXXX	Related Work (3 of 5)	3			
					<b>31 Credit Hours for Year</b>

### Senior Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
XXXX XXXX	SSN Concentration Elective (2 of 3)	3			
XXXX XXXX	Related Work (4 of 5)	3			
XXXX XXXX	CCI Technical Elective: ITCS/ITIS 3XXX or above (1 of 2)	3			
XXXX XXXX	CCI Technical Elective: ITCS/ITIS 3XXX or above (2 of 2)	3			
XXXX XXXX	Free Elective	3			
<i>Spring Semester</i>					
ITCS 4XXX	CS Capstone: ITCS 4155, 4650, 4651, 4990, or 4991	3			
XXXX XXXX	SSN Concentration Elective (3 of 3)	3			
XXXX XXXX	Related Work (5 of 5)	3			
XXXX XXXX	Free Elective	3			
XXXX XXXX	Free Elective	1			
					<b>28 Credit Hours for Year</b>

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**SUGGESTED PLAN OF STUDY – CONCENTRATION: CYBER SECURITY**

**SUGGESTED PLAN OF STUDY – CONCENTRATION: SOFTWARE ENGINEERING**

**SUGGESTED PLAN OF STUDY – CONCENTRATION: WEB & MOBILE APPLICATIONS**

**- SEE ACADEMIC PLAN OF STUDY FOR B.S. IN COMPUTER SCIENCE (SIS DEPARTMENT) –**

**SUGGESTED PLAN OF STUDY – CONCENTRATION: BIOINFORMATICS**

**- SEE ACADEMIC PLAN OF STUDY FOR B.S. IN COMPUTER SCIENCE (BINF DEPARTMENT) -**

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## **ADVISING RESOURCES**

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- Central Advising website: [advising.uncc.edu](http://advising.uncc.edu)
- College of Computing & Informatics advising website: [cci.uncc.edu/students/advising](http://cci.uncc.edu/students/advising)
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