

PROGRAM SUMMARY

- **Credit Hours:** 120 hours
- **Concentrations:** Cyber Security; Software Engineering; and Web & Mobile Applications
 - See separate Academic Plan of Study for concentrations in AI, Robotics & Gaming; Data Science; Software, Systems & Networks (CS 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 Cyber Security, Software Engineering, Web & Mobile Applications, Bruce Long, Assistant Chair and Director of Undergraduate Programs, Department of Software and Information Systems, 704-687-8441, nblong@uncc.edu, Woodward Hall 310-E.

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 |
|--|--------------|---|
| Pre-Major/Prerequisites | - | |
| Major | 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. |
| General Education (not satisfied by other major requirements) | 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). |
| Related Work | 9-15 | May be satisfied by a second major, a minor, or a set of coordinated courses developed through consultation with an advisor. |
| Foreign Language | - | |
| Electives | 1-11 | Varies depending on concentration |
| Total Credit Hours | 120 | |

SUGGESTED PLAN OF STUDY – CONCENTRATION: CYBER SECURITY

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 | | | |
| LBST 110X | LBST 1100 Series: Arts and Society | 3 | X | | |
| UWRT 1102 | Writing and Inquiry in Academic Contexts II | 3 | X | | |
| MATH 1242 | Calculus II | 3 | X | | |
| PHIL 1106 | Critical Thinking | 3 | | | |

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> | | | | | |
| ITSC 3181+L | Introduction to Computer Architecture (with Lab) | 4 | | | |
| ITIS 3130 | Human-Computer Interaction | 3 | | | |
| ITSC 3155 | Software Engineering | 3 | | | |
| ITIS 2300+L | Web-Based Application Development | 3 | | | |
| XXXX XXXX | Related Work (2 of 5) | 3 | | | |
| <i>Spring Semester</i> | | | | | |
| ITSC 3146 | Operating Systems and Networks | 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 |
| ITIS 3200 | Introduction to Information Security and Privacy | 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> | | | | | |
| ITIS 3110+L | IT Infrastructure: Design and Practice | 3 | | | |
| ITCS 3160 | Database Design and Implementation | 3 | | | |
| ITIS 4250 | Computer Forensics | 3 | | | |
| ITIS 4166 | Network-Based Application Development | 3 | | | |
| XXXX XXXX | Related Work (4 of 5) | 3 | | | |
| <i>Spring Semester</i> | | | | | |
| ITIS 4221 | Secure Programming and Penetration Testing | 3 | | | |
| ITIS 4420 | Usable Security & Privacy | 3 | | | |
| ITCS 4XXX | Capstone ITCS 4155, 4650/4651, 4990 or 4991 | 3 | | | |
| XXXX XXXX | Related Work (5 of 5) | 3 | | | |
| XXXX XXXX | Free Elective | 1 | | | |

28 Credit Hours for Year

ADVISING RESOURCES

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

SUGGESTED PLAN OF STUDY – CONCENTRATION: SOFTWARE ENGINEERING

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 | | | |
| LBST 110X | LBST 1100 Series: Arts and Society | 3 | X | | |
| UWRT 1102 | Writing and Inquiry in Academic Contexts II | 3 | X | | |
| MATH 1242 | Calculus II | 3 | X | | |
| PHIL 1106 | Critical Thinking | 3 | | | |

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 | | | |
| XXXX XXXX | Natural Science (General Education Requirement) | 3 | X | | |
| LBST 2102 | Global and Intercultural Connections | 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> | | | | | |
| ITSC 3181+L | Introduction to Computer Architecture (with Lab) | 4 | | | |
| ITSC 3155 | Software Engineering | 3 | | | |
| ITIS 2300+L | Web-Based Application Development | 3 | | | |
| ITIS 3130 | Human-Computer Interaction | 3 | | | |
| XXXX XXXX | Related Work (2 of 5) | 3 | | | |
| <i>Spring Semester</i> | | | | | |
| ITSC 3146 | Operating Systems and Networks | 3 | | | |
| ITIS 2211 | Ethical Issues in Personal, Professional, and Public Life | 3 | X | | |
| ITCS 3688 | Computers and Their Impact on Society | 3 | X | W,O | Fulfills writing in the discipline |
| ITCS 3160 | Database Design and Implementation | 3 | | | |
| ITIS 3200 | Introduction to Information Security and Privacy | 3 | | | |

31 Credit Hours for Year

Senior Year

| Course Number | Course Title | Credit Hours | General Education | W/O Course | Notes |
|------------------------|--|--------------|-------------------|------------|-------|
| <i>Fall Semester</i> | | | | | |
| ITIS 3300 | Software Requirements and Project Management | 3 | | | |
| ITIS 3310 | Software Architecture and Design | 3 | | | |
| ITIS 3320 | Introduction to Software Testing and Assurance | 3 | | | |
| ITIS 4166 | Network-Based Application Development | 3 | | | |
| XXXX XXXX | Related Work (3 of 5) | 3 | | | |
| <i>Spring Semester</i> | | | | | |
| ITIS 4221 | Secure Programming and Penetration Testing | 3 | | | |
| ITCS 4XXX | Capstone ITCS 4155, 4650/4651, 4990 or 4991 | 3 | | | |
| XXXX XXXX | Related Work (4 of 5) | 3 | | | |
| XXXX XXXX | Related Work (5 of 5) | 3 | | | |
| XXXX XXXX | Free Elective | 1 | | | |

28 Credit Hours for Year

ADVISING RESOURCES

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

SUGGESTED PLAN OF STUDY – CONCENTRATION: WEB & MOBILE APPLICATIONS

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 | | | |
| LBST 110X | LBST 1100 Series: Arts and Society | 3 | X | | |
| UWRT 1102 | Writing and Inquiry in Academic Contexts II | 3 | X | | |
| MATH 1242 | Calculus II | 3 | X | | |
| PHIL 1106 | Critical Thinking | 3 | | | |

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> | | | | | |
| ITSC 3181+L | Introduction to Computer Architecture (with Lab) | 4 | | | |
| ITSC 3155 | Software Engineering | 3 | | | |
| ITIS 3130 | Human-Computer Interaction | 3 | | | |
| ITIS 2300+L | Web-Based Application Development | 3 | | | |
| XXXX XXXX | Related Work (2 of 5) | 3 | | | |
| <i>Spring Semester</i> | | | | | |
| ITSC 3146 | Operating Systems and Networks | 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 |
| ITIS 3200 | Introduction to Information Security and Privacy | 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> | | | | | |
| ITCS 3160 | Database Design and Implementation | 3 | | | |
| ITIS 4180 | Mobile Application Development | 3 | | | |
| ITIS 4166 | Network-Based Application Development | 3 | | | |
| ITIS 4440 | Interactive Systems Design and Implementation | 3 | | | |
| XXXX XXXX | CCI Technical Elective: ITCS/ITIS 3XXX or above (1 of 1) | 3 | | | |
| <i>Spring Semester</i> | | | | | |
| ITIS 4221 | Secure Programming and Penetration Testing | 3 | | | |
| ITCS 4XXX | Capstone ITCS 4155, 4650/4651, 4990 or 4991 | 3 | | | |
| XXXX XXXX | Related Work (4 of 5) | 3 | | | |
| XXXX XXXX | Related Work (5 of 5) | 3 | | | |
| XXXX XXXX | Free Elective | 1 | | | |

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- College of Computing & Informatics advising website: cci.uncc.edu/students/advising
- University Advising Center website: advisingcenter.uncc.edu

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

SUGGESTED PLAN OF STUDY – CONCENTRATION: DATA SCIENCE

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

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

SUGGESTED PLAN OF STUDY – CONCENTRATION: BIOINFORMATICS

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

ADVISING RESOURCES

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