# Computer Science MS program
## *(Fall 2018 onwards)*
## Degree Requirements Check Sheet

Name: _____ ID: 800_____ First semester of enrollment: ( ) Spring ( ) Fall 20____

**Source:** https://catalog.uncc.edu/preview_program.php?catoid=23&poid=5578 (accessed 9/1/2018)

## General requirements:

- 30 graduate credit hours, which may optionally include 6 hours of thesis, with GPA at least 3.0.
- At least 18 hours must be from the Department of Computer Science.
- At least 24 hours must be from the College of Computing and Informatics.
- At least 15 hours must be 6000 level or above courses.
- A maximum of 6 hours of graduate credit may be transferred from other institutions.

## Core Requirements:

- Select 4 courses, one from each core group, to satisfy the core requirements.
- Core Courses must each be passed with A or B grades. A minimum overall 3.0 GPA is required.

| **Foundation of Computing Core** | Date taken | Grade |
|---|---|---|
| ITCS 6114 - Algorithms and Data Structures | | |
| ITCS 6115 - Advanced Algorithms | | |
| ITCS 6156 - Machine Learning | | |

| **AI, Robotics, and Gaming Core** | | |
|---|---|---|
| ITCS 5152 - Computer Vision | | |
| ITCS 6120 - Computer Graphics | | |
| ITCS 6150 - Intelligent Systems | | |

| **Data Science and Management Core** | | |
|---|---|---|
| ITCS 5122 - Visual Analytics | | |
| ITCS 6162 - Knowledge Discovery in Databases | | |
| ITCS 6345 - Modern Data Science Systems | | |

| **Software, Systems, and Networks Core** | | |
|---|---|---|
| ITCS 5145 - Parallel Computing | | |
| ITCS 6166 - Computer Communications and Networks | | |
| ITCS 6182 - Computer System Architecture | | |

## Optional Concentration (9 credit hours):

Students who choose to declare a concentration must take at least 9 credit hours of courses listed in that concentration (see below). Courses used to fulfill the core requirement cannot be counted for credit in an area of concentration.

### AI, Robotics, and Gaming Concentration (ARGC)

*Select three of the following:*

| | Date taken | Grade |
|---|---|---|
| ITCS 5152 - Computer Vision | | |
| ITCS 5156 - Applied Machine Learning | | |
| ITCS 5230 - Introduction to Game Design and Development | | |
| ITCS 5231 - Advanced Game Design and Development | | |
| ITCS 5232 - Game Design and Development Studio | | |
| ITCS 5235 - Game Engine Construction | | |
| ITCS 5236 - Artificial Intelligence for Computer Games | | |
| ITCS 6050 - Topics in Intelligent Systems | | |
| ITCS 6120 - Computer Graphics | | |

| | | |
|---|---|---|
| ITCS 6125 - Virtual and Augmented Reality | | |
| ITCS 6127 - Real-Time Rendering Engines | | |
| ITCS 6134 - Digital Image Processing | | |
| ITCS 6150 - Intelligent Systems | | |
| ITCS 6151 - Intelligent Robotics | | |
| ITCS 6152 - Robot Motion Planning | | |
| ITCS 6156 - Machine Learning | | |
| ITCS 6158 - Natural Language Processing | | |
| ITCS 6500 - Complex Adaptive Systems | | |
| ITCS 6881 - Individual Study in AI, Robotics, and Gaming | | |
| ITCS 6991 - Computer Science Thesis | | |

**Data Science Concentration (DSC)**
*Select three of the following:*

| | Date taken | Grade |
|---|---|---|
| ITCS 5121 - Information Visualization | | |
| ITCS 5122 - Visual Analytics | | |
| ITCS 5123 - Visualization and Visual Communication | | |
| ITCS 6040 - Topics in Data Science | | |
| ITCS 6100 - Big Data Analytics for Competitive Advantage | | |
| ITCS 6124 - Illustrative Visualization | | |
| ITCS 6126 - Large Scale Information Visualization | | |
| ITCS 6140 - Data Visualization | | |
| ITCS 6155 - Knowledge-Based Systems | | |
| ITCS 6157 - Visual Databases | | |
| ITCS 6160 - Database Systems | | |
| ITCS 6161 - Advanced Topics in Database Systems | | |
| ITCS 6162 - Knowledge Discovery in Databases | | |
| ITCS 6163 - Data Warehousing | | |
| ITCS 6190 - Cloud Computing for Data Analysis | | |
| ITCS 6265 - Advanced Topics in Knowledge Discovery in Databases | | |
| ITCS 6345 - Modern Data Science Systems | | |
| ITCS 6882 - Individual Study in Data Science | | |
| ITCS 6991 - Computer Science Thesis | | |

## Information Security and Privacy Concentration (ISPC)

Required Course

| | Date taken | Grade |
|---|---|---|
| ITIS 6200 - Principles of Information Security and Privacy | | |

Elective Courses
*Select two of the following:*

| | Date taken | Grade |
|---|---|---|
| ITIS 5221 - Secure Programming and Penetration Testing | | |
| ITIS 5250 - Computer Forensics | | |
| ITIS 5260 - Introduction to Security Analytics | | |
| ITIS 6150 - Software Assurance | | |
| ITIS 6167 - Network Security | | |
| ITIS 6210 - Access Control and Security Architecture | | |
| ITIS 6220 - Data Privacy | | |
| ITIS 6230 - Information Infrastructure Protection | | |
| ITIS 6240 - Applied Cryptography | | |
| ITIS 6362 - Information Technology Ethics, Policy, and Security | | |

| | | |
|---|---|---|
| ITIS 6420 - Usable Security and Privacy | | |

## Software, Systems, and Networks Concentration (SSNC)

*Select three of the following:*

| | Date taken | Grade |
|---|---|---|
| ITCS 5102 - Survey of Programming Languages | | |
| ITCS 5133 - Numerical Computation Methods and Analysis | | |
| ITCS 5145 - Parallel Computing | | |
| ITCS 5180 - Mobile Application Development | | |
| ITCS 5182 - Introduction to High Performance Computing | | |
| ITCS 6112 - Software System Design and Implementation | | |
| ITCS 6132 - Modeling and Analysis of Communication Networks | | |
| ITCS 6166 - Computer Communications and Networks | | |
| ITCS 6167 - Advanced Networking Protocols | | |
| ITCS 6168 - Wireless Communication Networks | | |
| ITCS 6182 - Computer System Architecture | | |
| ITCS 6190 - Cloud Computing for Data Analysis | | |
| ITCS 6883 - Individual Study in Software, Systems, and Networks | | |
| ITCS 6991 - Computer Science Thesis | | |
| ITIS 5166 - Network-Based Application Development | | |
| ITIS 5280 - Advanced Mobile Application Development | | |
| ITIS 6167 - Network Security | | |
| ECGR 5101 - Advanced Embedded Systems | | |
| ECGR 5124 - Digital Signal Processing | | |
| ECGR 6181 - Embedded Operating Systems | | |

## Elective Courses (0-15 credit hours)

Students who select no concentration must complete 15 credit hours of elective courses. Students who select a concentration must complete 6 credit hours or of elective courses. Students who chose to declare dual concentration will not need elective courses. Students may choose from the following elective courses:

- ITCS 5000 - ITCS 6999
- ITIS 5000 - ITIS 6999
- DSBA 5000 - DSBA 6999

| | Date taken | Grade |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 8 | | |
| 9 | | |
| 10 | | |

## Capstone (3 credit hours)

Select one of the following courses. Credit hours from a capstone course may be counted towards a concentration requirement, too, if the same course is listed in that concentration. For students pursuing the M.S. Thesis, they will have to enroll in ITCS 6991 in two consecutive semesters (6 credit hours total), with the 3 credit hours satisfying the capstone requirement.

| | Date taken | Grade |
|---|---|---|
| ITCS 5180 - Mobile Application Development | | |
| ITCS 5231 - Advanced Game Design and Development | | |
| ITCS 5232 - Game Design and Development Studio | | |
| ITCS 6112 - Software System Design and Implementation | | |
| ITCS 6880 - Individual Study | | |
| ITCS 6881 - Individual Study in AI, Robotics, and Gaming | | |

| | | |
|---|---|---|
| ITCS 6882 - Individual Study in Data Science | | |
| ITCS 6883 - Individual Study in Software, Systems, and Networks | | |
| ITCS 6991 - Computer Science Thesis | | |
| ITIS 5166 - Network-Based Application Development | | |