

# transfer pathway guide

# 2019-2020

Associate of Science in Computer Science To

Bachelor of Science in Computer Science

## Overview

Completion of the following curriculum will satisfy the requirements for the **Associate of Science in Computer Science** degree at Ivy Tech Community College and leads to the **Bachelor of Science in Computer Science** degree at Northern Kentucky University.

## Applying to the IvyTech2NKU Program

Students can apply to participate in the pathway program by completing the online application on the NKU transfer webpage. Students must be enrolled in at least six credit hours at Ivy Tech, enrolled in an associate degree program, plan to transfer to NKU, and maintain a minimum 2.0 cumulative GPA at Ivy Tech.

## Degree Requirements for Ivy Tech

To earn a degree at Ivy Tech a student must successfully complete the required number of credits for the degree, attain a minimum GPA of 2.0 in the required technical and general education courses, and complete at least 15 degree credits in the curriculum as a regular student of Ivy Tech.

## Admission Requirements for NKU

Students completing an associate degree with a cumulative GPA of 2.0 or higher will be accepted into NKU. In addition, students must earn a grade of C- or better in each course that counts as part of the Computer Science major.

## Degree Requirements for NKU

To earn a bachelor’s degree at NKU, students must complete a minimum of 120 credit hours with at least 45 credit hours numbered 300 and above. In addition, at least 25% of the credit hours required for the degree and the last 30 credit hours must be completed at NKU. Students must have an overall GPA of 2.0 and meet all requirements for the major. In some cases, students must complete a focus or minor as indicated on the pathway.

### Ivy Tech Community College of Indiana

Students must complete the following courses for an Associate of Science in Computer Science.

#### Category 1: Transfer General Education Core (TGEC) Competencies

| **ITCC Course** | **Course or Category** | **Credits** | **NKU Course** | **Completed** |
| --- | --- | --- | --- | --- |
| ENGL 111 | English Composition | 3 | ENG 101 |  |
| COMM 101 | Fundamentals of Public Speaking | 3 | CMST 101 |  |
| MATH 211 | Calculus I | 4 | MAT 129 |  |
| MATH 212 | Calculus II | 4 | MAT 227 |  |
| BIOL 105 or  CHE 105 or  PHYS 220 | Biology I Molecular and Cellular Processes  or General Chemistry I or  Mechanics | 5 | BIO 150/150L  CHE 120/120L  PHY 200G/ PLAB 200G |  |
| BIOL 107 or  CHEM 106 or  PHYS 221 | Biology II Diversity of Life or  General Chemistry II or  Heat, Electricity and Optics | 5 | BIO 151/151L  CHE 121/121L  PHY 200G/ PLAB 200G |  |
| TBS XXX | Social and Behavioral Ways of Knowing | 3-4 | TBD XXX |  |
| TBS XXX | Humanistic and Artistic Ways of Knowing | 3-4 | TBD XXX |  |
|  | **Subtotal General Education Core** | **30-32** |  |  |

TBS XXX means to be selected by Ivy Tech student

TBD XXX means to be determined by NKU based on course selected at Ivy Tech

#### Category 2: Degree Requirements for Associate of Science in Computer Science and NKU Recommendations

| **ITCC Course** | **Course or Category** | **Credits** | **NKU Course** | **Completed** |
| --- | --- | --- | --- | --- |
| IVYT 115 | Student Success in Computing and Informatics | 1 | UNV 100T |  |
| CSCI 101 and  CSCI 201 and  CSCI 202 | Computer Science I and  Computer Science II and  Data Structures | 9 | CSC 260 + CSC 360 + CSC 100T |  |
| CSCI 210 | Database Systems | 3 | INF 282 |  |
| ITSP 135 | Hardware/Software Support | 4 | CIT 100T |  |
| CSCI 105 | Discrete Logic for Computers | 3 | CSC 100T |  |
| SDEV 120 | Computer Logic | 3 | INF 100T |  |
| SDEV 220 | Software Development using Python | 3 | INF 120 |  |
| SDEV 265 | Systems/Software Analysis and Projects | 3 | CSC 200T |  |
| CPIN 279 | Computer Science Capstone | 1 | INF 200T |  |
|  | **Total Associate Degree Credit Hours** | **60-62** |  |  |

SDEV 220 is the preferred choice; however, students can also take SDEV 200, SDEV 210 or SDEV 240.

### Northern Kentucky University

Students must complete the following for a B.S. in Computer Science

#### Category 3: Major Requirements for the BS in Computer Science

| **NKU Course** | **Course** | **Credits** | **ITCC Course** | **Taken at ITCC** |
| --- | --- | --- | --- | --- |
| INF 100 | Orientation to College of Informatics | 1 | Waived for students with AS degree |  |
| INF 120 | Elementary Programming | 3 | SDEV 220 | x |
| INF 284 or  CIT 247 | Introduction to Networks and Data Communication or Networking Fundamentals | 3 | NETI 105 |  |
| INF 286 | Introduction to Web Development | 3 | SDEV 153 |  |
| CSC 260 | Object-Oriented Programming I | 3 | CSCI 101 + CSCI 201 + CSCI 202 = CSC 260 + CSC 360 + CSC 100T | x |
| CSC 350 | Database Programming | 3 |  |  |
| CSC 360 | Object-Oriented Programming II | 3 | CSCI 101 + CSCI 201 + CSCI 202 = CSC 260 + CSC 360 + CSC 100T | x |
| CSC 362 | Computer Systems | 3 |  |  |
| CSC 364 | Data Structures and Algorithms | 3 |  |  |
| CSC 402 | Advanced programming Methods | 3 |  |  |
| CSC 439 | Software Testing and Maintenance | 3 |  |  |
| CSC 440 | Software Engineering | 3 |  |  |
| CSC 460 | Operating Systems | 3 |  |  |
| CSC 485 | Theory of Computation | 3 |  |  |
| CSC 491 | Comprehensive Examination | 0 |  |  |
| CSC XXX | Select one 300/400-level CSC course not included above. (see catalog) | 3 |  |  |
| TBS XXX  TBS XXX | Select two 400-level CSC courses not included above; only one of CSC 415 or CSC 416 may count; MAT 360 may count for either a 300- or 400-level course. | 6 |  |  |
| MAT 128 and MAT 227 and MAT 228  OR  MAT 129 and  MAT 229 | Calculus A, B and C or  Calculus I and II | 9 | MATH 211 and MATH 212 | Student must take MAT 228 (3 cr) |
| STA 250 | Probability and Statistics | 3 |  |  |
| MAT 385 | Discrete Mathematics | 3 |  |  |
|  | **Subtotal Major Credit Hours at NKU** | **49** |  |  |
|  | **Subtotal Major Credit Hours at ITCC** | **15** |  |  |
|  | **Total Major Credit Hours** | **64** |  |  |

#### Category 5: Additional Requirements at NKU

| **NKU Course** | **Course** | **Credits** | **ITCC Course** | **Taken at ITCC** |
| --- | --- | --- | --- | --- |
|  | **Subtotal Minor Credit Hours Taken at NKU** | **6-21** |  |  |
|  | **Subtotal Elective (300/400 level) Hours** | **0-6** |  |  |
|  | **Minimum Baccalaureate Degree Credit Hours** | **121** |  |  |

Note: In order to complete a B.S. degree in Computer Science at NKU, a student must complete a minor. A mathematics, computer information technology, or information systems minor would be a good choice. Category 6 tables below show the courses needed for the suggested minors. Students should discuss options for minors with an NKU advisor after transferring to NKU.

#### Category 6: Additional Requirements for Minor in Mathematics

| **NKU Course** | **Course** | **Credits** | **ITCC Course** | **Taken at ITCC** |
| --- | --- | --- | --- | --- |
| MAT 129 | Calculus A | 3 | MATH 211 | x |
| MAT 227 | Calculus B | 3 | MATH 212 | x |
| MAT 228 | Calculus C | 3 |  |  |
| MAT 234 | Linear Algebra | 3 |  |  |
| STA 250 | Probabilities and Statistics | 3 |  |  |
| MAT 385 | Discrete Math | 3 |  |  |
| TBS XXX | MAT course at the 300-level or above.  (CSC 250 or MAT 119 may be substituted) | 3 |  |  |
|  | **Additional Credit Hours for Mathematics Minor** (MAT 228, STA 250, and MAT 385 are required for the B.S. degree in Computer Science, so they are not counted as additional credit hours) | **6** |  |  |

#### Category 6: Additional Requirements for Minor in Computer Information Technology

| **NKU Course** | **Course** | **Credits** | **ITCC Course** | **Taken at ITCC** |
| --- | --- | --- | --- | --- |
| CIT 130 | Information Technology Fundamentals | 3 | INSE 101 |  |
| CIT 271 or  CIT 371 | Windows Administration or  Unix Systems | 3 |  |  |
| INF 110 or  INF 120 or  CSC 260 | Elementary Programming | 3 | SDEV 220 | x |
| INF 284 | Introduction to Computer Networks | 3 | NETI 105 |  |
| CIT XXX | Select one 300/400 level CIT course not listed above | 3 |  |  |
|  | Select 6 credit hours of INF, CIT, or CSC courses not included above | 6 |  |  |
|  | **Additional Credit Hours for Computer Information Technology Minor** (INF 284 and six credits of CSC courses are required for the B.S. degree in Computer Science, so they are not counted as additional credit hours) | **9** |  |  |

#### Category 6: Additional Requirements for Minor in Information Systems

| **NKU Course** | **Course** | **Credits** | **ITCC Course** | **Taken at ITCC** |
| --- | --- | --- | --- | --- |
| INF 120 | Elementary Programming | 3 | SDEV 220 | x |
| INF 282 | Introduction to Databases | 3 | CSCI 210 | x |
| INF 286 | Introduction to Web Development | 3 |  |  |
| BIS 275 | Introduction to Business Analysis | 3 |  |  |
| BIS 300 | Management Information Systems | 3 |  |  |
| BIS 310 | Systems Analysis and Design | 3 |  |  |
| BIS 330 | IT Project Management | 3 |  |  |
| Select one:  BIS 305, BIS 357, BIS 380, BIS 382, BIS 384, BIS 402, BIS 420, BIS 430, BIS 435, BIS 440 | BIS Elective | 3 |  |  |
|  | **Additional Credit Hours for Information Systems Minor** (INF 286 is required for the B.S. degree in Computer Science, so it is not counted as additional credit hours) | **15** |  |  |

Updated May 2019 for Fall 2019 Start