GENERAL STUDIES,
COMPUTER SCIENCE PATHWAY

Associate of Science
The Computer Science track at Dalton State allows students to grasp the fundamental concepts of computers and how they affect the world around us. Understanding the many characteristics of computing has become a necessary skill. Our two-year program develops a strong foundation of knowledge and skills necessary to succeed in computer science or to pursue a higher degree. The program incorporates practical and theoretical approaches to key aspects of computer science such as programming languages, operating systems, data structures and software engineering. These courses, along with the math and problem solving skills, represent the foundation to meet current and future industry needs.

Transfers toward the Bachelor of Science in Computer Science.

Area A: Essential Skills
- ENGL 1101 English Composition I 3
- ENGL 1102 English Composition II 3
- MATH 1113 Precalculus Mathematics 3

Area B: Institutional Options
- COMM 1110 Fundamentals of Speech 3
- One of the following electives: 1
  - COMM 1120 Argumentation and Advocacy
  - ENGL 1105 Intro to Greek Mythology
  - ENGL 1110 Creative Writing
  - GEOL 1000 Natural Hazards
  - HIST 1050 Appalachian Hist-Special Topic
  - HIST 1051 Sports Hist & Amer Character
  - HLTH 1030 Health and Wellness Concepts
  - HUMN 1000 Mystery Fiction in Pop Culture
  - HUMN 1100 Political and Social Rhetoric
  - HUMN 1300 Christian Fiction/Pop Culture
  - SOCI 1000 Race and Ethnicity in America
  - PRSP Elective (See advisor)

Area C: Humanities/Fine Arts
Choose one to two ENGL course(s): 3-6
- ENGL 2000 Topics in Literature & Culture
- ENGL 2111 World Literature I
- ENGL 2112 World Literature II
- ENGL 2120 British Literature I
- ENGL 2121 British Literature II
- ENGL 2130 American Literature I
- ENGL 2131 American Literature II
- ENGL 2201 Intro to Film as Literature
If only one ENGL course chosen, add one of the following: 0-3
- ARTS 1100 Art Appreciation
- HUMN 1201 Expressions of Culture I
- HUMN 1202 Expressions of Culture II
- MUSC 1100 Music Appreciation
- MUSC 1110 World Music
- MUSC 1120 American Music
- THEA 1100 Theatre Appreciation

Area D: Science/Mathematics/Technology
One of the following Laboratory Science Sequences: 8
- BIOL 1107K & BIOL 1108K Principles of Biology I and Principles of Biology II
- CHEM 1211K & CHEM 1212K Principles of Chemistry I and Principles of Chemistry II
- GEOL 1121K & GEOL 1122K Principles of Geology and Historical Geology
- PHYS 1111K & PHYS 1112K Introductory Physics I and Introductory Physics II
- PHYS 2211K & PHYS 2212K Principles of Physics I and Principles of Physics II
- MATH 2253 Calculus and Analytic Geom I 4

Area E: Social Sciences
- HIST 2111 United States History to 1877 3
  or HIST 2112 United States Hist since 1877
- POLS 1101 American Government 3
Two of the following electives: 6
- ANTH 1103 Intro to Cultural Anthropology
- ECON 2105 Principles of Macroeconomics
- ECON 2106 Principles of Microeconomics
- GEOG 1100 Introduction to Geography
- GEOG 1101 Intro to Human Geography
- GEOG 1111 Intro to Physical Geography
- HIST 1111 World Civilization to 1500 CE
- HIST 1112 World Civilization since 1500
- HIST 2111 United States History to 1877
- HIST 2112 United States Hist since 1877
- PHIL 1103 Intro to World Religions
- PHIL 2100 Intro to Philosophical Issues
- PHIL 2101 Logic and Critical Thinking
- POLS 2101 Intro to Political Science
- POLS 2201 State and Local Government
- POLS 2301 Comparative Politics
- POLS 2401 International Relations
- PSYC 1101 Introduction to Psychology
- PSYC 2101 Psychology of Adjustment
- PSYC 2103 Human Development
- SOCI 1101 Introduction to Sociology
- SOCI 1160 Social Problems

Area F: Major Related
- CMPS 1301 Principles of Programming I 3
- CMPS 1302 Principles of Programming II 3
- CMPS 2720 Data Structures 3
- MATH 2254 Calculus and Analytic Geom II 4
Two of the following electives: 4-5
- CMPS 1130 Computer Concepts/Programming
- CMPS 2313 Intro to Software Engineering
- MATH 1401 Elementary Statistics
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<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MATH 2255</td>
<td>Calculus and Analytic Geom III</td>
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<tr>
<td>MATH 2256</td>
<td>Introduction to Linear Algebra</td>
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<tr>
<td>MATH 2602</td>
<td>Linear &amp; Discrete Mathematics</td>
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**Physical Education**

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<th>Course Code</th>
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<td>PHED Activity Elective</td>
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**Total Hours** 61-62

* One hour from MATH 2253 may be used toward Area F credit hour requirement.

**Courses**

**CMPS 1130. Computer Concepts/Programming. 2-2-3 Units.**
Introduces the concepts of computer hardware, operating systems, and programming. Programming topics require creating well designed interfaces and well written code using simple data types, control structures, and loops. Students will gain hands on experience using a modern programming language. (F,S,M)

**CMPS 1301. Principles of Programming I. 3-0-3 Units.**
Introduces the principles of computer programming. Emphasis is on the design and teaching of correct well-structured algorithms using appropriate control structures with simple data types and data structures. (F,S)
Prerequisites: MATH 1111.

**CMPS 1302. Principles of Programming II. 3-0-3 Units.**
This course continues the development of program design using a modern object-oriented language. (S)
Prerequisites: CMPS 1301.

**CMPS 1371. Computing for Scien & Engineer. 3-0-3 Units.**
Introduces skills and concepts which are needed to use the computer in scientific and engineering work. Topics include design and analysis of algorithms, methods and techniques of scientific computation, and the organization of software. (F,S)
Corequisites: MATH 2253.

**CMPS 2313. Intro to Software Engineering. 3-0-3 Units.**
This course will develop students' ability to apply a systematic, engineering approach to the development of software systems. Software development process will explore software development life cycles, requirements elicitation, architectural design, design decomposition, implementation, and testing. The course teaches students about modern techniques available for performing activities in each of these areas. (S)
Prerequisites: CMPS 1302.

**CMPS 2720. Data Structures. 3-0-3 Units.**
The design, analysis, implementation and evaluation of the fundamental structures for representing and manipulating data. Structures include collections, lists, linked lists, stacks, queues, trees, heaps, tables. (F)
Prerequisites: CMPS 1301.

**CMPS 2900. Special Topics in Comp Science. 0-0-1-3 Unit.**
Variable 1-3 hours. Special topics in computer science are presented, the content varies with the topic. This course may be repeated for credit when topic differs. (Offered As Needed) Prerequisite: Permission of Instructor.