Department of Computer Science and Information Technology

Bachelor of Science (B.S.) Information Sheet

The Department of Computer Science and Information Technology offers three Bachelor of Science (B.S.) degrees. There are eight (8) areas of study (concentrations) available under the three (3) majors.

- **B.S. in Computer Science (BS CSC – declare using major code: csc)**
  - **Computer Theory and Systems Concentration** This program concentrates on the technical areas of computing with an emphasis on programming and algorithm design. It includes a significant mathematics component.
  - **Intelligent Robotics Concentration** This program provides students with a background in software development for autonomous robots. Students will study math, computer science, artificial intelligence and robotics.
  - **Software Engineering Concentration** This program focuses on the areas needed to develop and manage large software systems. Topics include requirements, software design and architecture, testing, software quality assurance, and project management.

- **B.S. in Computer Information Systems (BS CIS – declare using major code: cmis)**
  - **Systems Development Concentration** This program is for those who plan to work in some areas of computer applications in the business field. Areas of study include data communications, database management, and systems analysis and design, with an emphasis on programming in several languages that are useful for business applications.
  - **Information Assurance and Security Concentration** This program prepares students to work in the information security and data protection areas. The program features student selectable emphasis areas in information security technical administration, information security management and secure software development.

- **B.S. in Computer Information Technology (BS CIT – declare using major code: cmit)**
  - **Database Administration Concentration** This program trains students in the design, implementation, and administration of databases, including those accessed by Web applications.
  - **Internet and Web Technology Concentration** This program trains students in the development and support of Internet applications. It emphasizes the construction of Web sites and the use of scripting languages.
  - **Networking Concentration** This program provides students with an in-depth understanding of the foundations of data communication and modern networking technology and develops the technical skills needed to deploy and manage an enterprise network in a secure computing environment.

Students need to complete the General Education Core requirements. Concentrations from B.S. CIS and B.S. CIT degrees require students to complete a **minor or a second concentration**. The Department of Computer Science and IT is in the Maynard Mathematics and Computer Science Building. There are currently over 600 majors in the department from which the department produces over 100 graduates each year. Transfer students and non-traditional students are welcome.

The Department also offers **five minors** in Computer Science, Computer Networking, Mobile Software Technology, Web Technology and Information Assurance & Security.

Advisors are available to assist prospective students in choosing a concentration and planning a program that will lead to graduation. Information on all the programs in the Department is available at the Department’s Web site, [www.apsu.edu/csci](http://www.apsu.edu/csci)

For more information, contact
Dr. Leong Lee, Associate Professor and Department Chair
Department of Computer Science and Information Technology
Austin Peay State University, P.O. Box 4414, Clarksville, Tennessee 37044, USA
(931) 221-7038; leel@apsu.edu

* This page is for informational purposes only. Changes to your degree plan or updates to the bulletin may change the list of required classes. You should regularly check with a Computer Science advisor for up-to-date degree requirements and to ensure timely graduation.  

Last updated: December 16, 2018
B.S. in Computer Science
B.S. in Computer Information Systems
B.S. in Computer Information Technology

Graduation Checklist
___ Earn a minimum of 120 semester hours credit (overall GPA of 2.0 or better + APSU GPA of 2.0 or better).
___ Earn 33 semester credit hours of upper division courses (3000-4999 courses).
___ Earn >= 25 % of the degree requirements in residency; earn >= 24 semester credit hours in the junior or senior years.
___ Complete the General Education Core courses.
___ Complete APSU 1000 during 1st semester, if entering APSU with fewer than 12 university credits.
___ Complete the requirements for the chosen major and concentration (GPA of 2.0 or better).
___ Complete the requirements for the chosen minor or second concentration if applicable (GPA of 2.0 or better).
___ Complete the Major Field Test (if required) during the semester of graduation, and Senior Exit Exam (CCTST).

General Education Core
Refer to the last two (2) pages of this documents for all general education core courses.

Concentration / Minor Chart
Our department offers eight (8) concentrations and five (5) minors.
Some concentration-minor restrictions apply.

* : cannot be chosen together to satisfy degree requirement
✓ : can be chosen together to satisfy degree requirement

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Computer Science</th>
<th>Computer Networking</th>
<th>Mobile Software</th>
<th>Web Technology</th>
<th>Info Assu &amp; Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp Theory &amp; Sys</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Intelligent Robotics</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Software Engineering</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Systems Development</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Info Assu &amp; Security</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Database Admin</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Internet &amp; Web</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Network</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Bachelor of Science Degree in Computer Science

A. General Education Core – Last 2 pages of this document (41 Credit hours)

B. APSU 1000 - Transition to the University (1 credit hour)

C. Major Requirements that Satisfy General Education Core
   MATH 1910 - Calculus and Analytic Geometry 4

D. Major Core Requirements

D.1 Lower Division Courses (17 to 18 hours)
   CSCI 1010 - Introduction to Programming I 3
   and
   CSCI 2010 - Introduction to Programming II 3
   or
   CSCI 2000 - Programming and Data Structures using C++ 4
   CSCI 2070 - Programming in Selected Languages I 3
   or
   CSCI 2080 - Programming Selected Languages II 3
   MATH 1910 - Calculus and Analytic Geometry 4
   MATH 1920 - Calculus and Analytical Geometry 4

D.2 Upper Division Courses (19 hours)
   CSCI 3250 - Data Structure and Algorithms 3
   CSCI 3400 - Computer Organization I 3
   CSCI 4100 - Operating Systems and Architecture 3
   CSCI 4230 - Programming Languages 3
   CSCI 4800 - Computer Science and Information Systems Seminar 1
   CSCI 4805 - Computer Science Capstone 3
   or
   CSCI 440I - Unrestricted Internship 3
   MATH 3000 - Discrete Mathematics 3

E Select ONE (1) CONCENTRATION from the concentrations listed (E.1 or E.2 or E.3):

E.1 Computer Theory and Systems Concentration (18 hours)
   CSCI 3410 - Computer Organization II 3
   CSCI 4270 - Algorithm Design and Analysis 3
   MATH 3450 - Linear Algebra 3
   Select one (1) course from the list below
   MATH 4670 - Numerical Analysis 3
   STAT 3250 - Statistical Methods 3
   STAT 4240 - Probability 3
   Select two (2) courses from the list below
   CSCI 3090 - Introduction to Parallel Programming 3
   CSCI 3500 - Theory of Automata, F. Lang. & Com. 3
   CSCI 4350 - Compiler Design 3
   CSCI 4450 - Introduction to Artificial Intelligence 3
   CSCI 4550 - Computer Graphics 3

E.2 Intelligent Robotics Concentration (18 hours)
   CSCI 4270 - Algorithm Design and Analysis 3
   CSCI 4450 - Introduction to Artificial Intelligence 3

* This page is for informational purposes only. Changes to your degree plan or updates to the bulletin may change the list of required classes. You should regularly check with a Computer Science advisor for up-to-date degree requirements and to ensure timely graduation.  

Last updated: December 16, 2018
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 4560 - Robotics I</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4561 - Robotics II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 3450 - Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>STAT 3250 - Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>STAT 4240 - Probability</td>
<td>3</td>
</tr>
</tbody>
</table>

**E.3 Software Engineering Concentration**  
(18 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 3005 - Object Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4600 - Introduction to Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4601 - Testing and Quality Assurance</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4602 - Software Design and Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4603 - Requirements and Project Management</td>
<td>3</td>
</tr>
<tr>
<td>STAT 3250 - Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>STAT 4240 - Probability</td>
<td>3</td>
</tr>
</tbody>
</table>

**F. General Electives**  
(27 to 28 hours)

Can be fulfilled by a minor or another concentration.
B.S. in Computer Science Prerequisite Chart

MATH 1910
Calculus & Analytic Geometry

MATH 1920
Calculus & Analytical Geometry

MATH 1710 or 1110 with a grade of "C" or higher; or ACT-M with score of 25 or higher

MATH 1730 with a grade of "C" or higher; or HS trigonometry and ACT-M score 27 or higher

MATH 1710 or 1110 with a grade of "C" or higher; or ACT-M with score of 25 or higher

MATH 3000
Discrete Mathematics

MATH 3450
Linear Algebra

MATH 4670
Numerical Analysis

STAT 4240
Probability

STAT 3250
Statistical Methods

CSCI 1010
Intro. to Programming I

CSCI 2010
Intro. to Programming II

CSCI 3400
Computer Organization I

CSCI 3500

CSCI 3410
Computer Organization II

CSCI 3090
Intro. Parallel Programming

CSCI 4500
Computer Graphics

CSCI 4350
Programming Selected Lang. I
OR
CSCI 2080
Programming Selected Lang. II

CSCI 4800 (last semester)
Comp. Sci. & Info. Sys. Seminar

CSCI 4805 (chair approval, senior)
Comp. Sci. Capstone

CSCI 440I (instructor approval)
Unrestricted Internship

CSCI 4230
Programming Languages

CSCI 3005
Object Oriented Programming

CSCI 4600
Software Design & Development

CSCI 4601
Testing and Quality Assurance

CSCI 4602
Software Design & Architecture

CSCI 4603
Requirements & Proj. Mgmt.

CSCI 4100
Operating Sys. & Architecture

CSCI 4270
Algorithm Design & Analysis

CSCI 4350
Compiler Design

CSCI 4450
Intro. to Artificial Intelligence

Computer Theory and Systems Concentration

CSCI 4560
Robotics I

CSCI 4561
Robotics II

CSCI 4560
Robotics I

Software Engineering Concentration

Intelligent Robotics Concentration

* This page is for informational purposes only. Changes to your degree plan or updates to the bulletin may change the list of required classes. You should regularly check with a Computer Science advisor for up-to-date degree requirements and to ensure timely graduation.
Bachelor of Science Degree in Computer Information Systems

A. General Education Core – Last 2 pages of this document (41 Credit hours)

B. APSU 1000 - Transition to the University (1 credit hour)

C. Major Requirements that Satisfy General Education Core
   MATH 1530 - Elements of Statistics 3

D. Major Core Requirements

D.1 Lower Division Courses (4 to 6 hours)
   CSCI 1010 - Introduction to Programming I 3
   CSCI 2010 - Introduction to Programming II 3
   or CSCI 2000 - Programming and Data Structures using C++ 4

D.2 Upper Division Courses (16 hours)
   CSCI 3200 - Principles of Information Security 3
   CSCI 3300 - Introduction to Web Development 3
   CSCI 3400 - Computer Organization I 3
   CSCI 3700 - Data Communications and Networking 3
   CSCI 4400 - Principles of Database Management 3
   CSCI 4800 - Computer Science and Information Systems Seminar 1

E Select ONE (1) CONCENTRATION from the concentrations listed (E.1 or E.2):

E.1 Systems Development Concentration
   Lower Division Courses (12 to 13 hours)
   CSCI 2070 - Programming in Selected Languages I 3
   or CSCI 2080 - Programming Selected Languages II 3
   ENGL 1100 - Technical and Report Writing 3
   MATH 1530 - Elements of Statistics 3 (Gen Edn Core)
   MATH 1810 - Elements of Calculus 3
   or MATH 1910 - Calculus and Analytic Geometry 4
   Upper Division Courses (12 hours)
   CSCI 3020 - XML Processing 3
   CSCI 4000 - Advanced Web Development 3
   or CSCI 4650 - Introduction to ASP.NET Programming 3
   CSCI 4100 - Operating Systems and Architecture 3
   CSCI 4750 - Systems Analysis and Design 3

E.2 Information Assurance and Security Concentration
   Lower Division Courses (6 hours)
   ENGL 1100 - Technical and Report Writing 3
   MATH 1530 - Elements of Statistics 3 (Gen Edn Core)
   Upper Division Courses (19 hours)
   CSCI 3600 - Computer Ethics 3
   CSCI 3603 - Cryptography 3
   CSCI 3629 - Information Security Certification Workshop 1
   Select four (4) courses from the list below

* This page is for informational purposes only. Changes to your degree plan or updates to the bulletin may change the list of required classes. You should regularly check with a Computer Science advisor for up-to-date degree requirements and to ensure timely graduation. Last updated: December 16, 2018
CSCI 3601 - Computer Forensics and Incident Response 3
CSCI 3602 - Securing Cyber Space (Web, DB, and Platform) 3
CSCI 3607 - IAS/Security Policy and Governance 3
CSCI 3619 - Ethical Hacking and Offensive Security 3
CSCI 3624 - System Vulnerability Analysis and Auditing 3
CSCI 3625 - Intrusion Detection and Prevention 3
CSCI 3628 - IAS/Defensive Programming 3
CSCI 3630 - IAS/Secure Software Engineering 3
CSCI 4100 - Operating Systems and Architecture 3
CSCI 4520 - Network Security 3
CSCI 4750 - Systems Analysis and Design 3

F. Minor or Second Concentration (18 hours)
   Some restrictions on minor may apply.

G. General Electives (16 to 19 hours)
   Can be fulfilled by a minor or another concentration.
B.S. in Computer Information Systems Prerequisite Chart

CSCI 1010
Intro. to Programming I

CSCI 2010
Intro. to Programming II

CSCI 2100
Intro. to Operating Systems

CSCI 2200
Computer Organization I

CSCI 3100
Principles of Programming Languages

CSCI 3200
Intro. to Web Development

CSCI 3300
Intro. to Programming II

CSCI 3400
Computer Organization I

CSCI 3500
Networks and Distributed Systems

CSCI 3600
Computer Ethics

CSCI 3700
Data Comm. & Networking

CSCI 3800
Comp. Sci. & Info. Sys. Seminar

CSCI 3900
Cryptography

CSCI 4000
Advanced Web Development

CSCI 4100
Operating Sys. & Architecture

CSCI 4200
Database Management Systems

CSCI 4300
Web Development

CSCI 4400
Principles of Database Mgt.

CSCI 4500
Computational Intelligence

CSCI 4600
Intro. to Software Development

CSCI 4700
Intro. to ASP.NET Programming

CSCI 4800 (last semester)
Comp. Sci. & Info. Sys. Seminar

Systems Development Concentration

CSCI 2070
Programming Selected Lang. I

OR

CSCI 2080
Programming Selected Lang. II

CSCI 4750
Intro. to ASP.NET Programming

CSCI 4650
Intro. to ASP.NET Programming

CSCI 4700
Intro. to ASP.NET Programming

CSCI 4800
Comp. Sci. & Info. Sys. Seminar

Information Assurance and Security Concentration

MATH 1910
Calculus & Analytic Geometry

MATH 1710 or 1110 with a grade of "C" or higher; or ACT-M with score of 25 or higher

MATH 1730 with a grade of "C" or higher; or HS trigonometry and ACT-M score 27 or higher

MATH 1710 or 1730 with a grade of "C" or higher; or ACT-M score 25 or higher

MATH 1110 or 1710 or 1730 with a grade of "C" or higher; or ACT-M score 25 or higher

MATH 1810
Elements of Calculus

ENGL 1010 with a grade of "C" or higher

ENGL 1010
Technical or Report Writing

MATH 1710 Precalculus Algebra

CSCI 3603
Cryptography

CSCI 3601
Comp. Forensics & Incid. Resp.

CSCI 3602
Securing Cyber Space

CSCI 3603
Cryptography

CSCI 3607
IAS/Security Policy & Govern.

CSCI 3624

CSCI 3625
Intrusion Detection & Prevention

CSCI 3629

CSCI 3630
IAS/Secure Software Engineering

CSCI 3619
Ethical Hacking & Off. Secu.

CSCI 3628
IAS/Defensive Programming

MATH 1530
Elements of Statistics

* This page is for informational purposes only. Changes to your degree plan or updates to the bulletin may change the list of required classes. You should regularly check with a Computer Science advisor for up-to-date degree requirements and to ensure timely graduation. Last updated: December 16, 2018
Bachelor of Science Degree in Computer Information Technology

A. General Education Core – Last 2 pages of this document (41 Credit hours)

B. APSU 1000 - Transition to the University (1 credit hour)

C. Major Core Requirements

C.1 Lower Division Courses (6 hours)
- CSCI 1005 - Computer Hardware, Software, and Programming Concepts 3
- CSCI 1015 - Introduction to Computer Programming 3

C.2 Upper Division Courses (16 hours)
- CSCI 3200 - Principles of Information Security 3
- CSCI 3300 - Introduction to Web Development 3
- CSCI 3700 - Data Communications and Networking 3
- CSCI 4400 - Principles of Database Management 3
- CSCI 4800 - Computer Science and Information Systems Seminar 1
- CSCI 4940 - Internship in Information Technology 3

D. Select ONE (1) CONCENTRATION from the concentrations listed (D.1 or D.2 or D.3):

D.1 Database Administration Concentration
Upper Division Courses (18 hours)
- CSCI 3000 - Data Modeling 3
- CSCI 4460 - Content Management Systems 3
- CSCI 4650 - Introduction to ASP.NET Programming 3
- CSCI 4750 - Systems Analysis and Design 3

Select two (2) courses from the list below
- CSCI 4410 - Database Admin Using DB2 3
- CSCI 4420 - Database Admin-MS SQL Server 3
- CSCI 4430 - Database Admin Using Oracle 3
- CSCI 4440 - Introduction to Open Source Databases 3

D.2 Internet and Web Technology Concentration
Upper Division Courses (21 hours)
- CSCI 3350 - Web User Interface Design 3
- CSCI 4000 - Advanced Web Development 3
- CSCI 4050 - Multimedia Tools and Technique 3
- CSCI 4460 - Content Management Systems 3
- CSCI 4630 - Web Server Administrator 3
- CSCI 4750 - Systems Analysis and Design 3
- CSCI 4390 - Introduction to JAVA Server Pages 3
  or
- CSCI 4650 - Introduction to ASP.NET Programming 3

D.3 Networking Concentration
Upper Division Courses (18 hours)
- CSCI 3760 - Linux Network Operating System Administration 3
  or
- CSCI 3770 - Microsoft Windows Network Operating System Administration 3
- CSCI 3870 - Wireless Communication and Networking 3
- CSCI 4520 - Network Security 3
- CSCI 4630 - Web Server Administrator 3
- CSCI 4670 - Network Applications 3
- CSCI 4770 - Advanced Data Communications and Networking 3

* This page is for informational purposes only. Changes to your degree plan or updates to the bulletin may change the list of required classes. You should regularly check with a Computer Science advisor for up-to-date degree requirements and to ensure timely graduation.  

Last updated: December 16, 2018
E. Minor or Second Concentration  
Some restrictions on minor may apply.  

F. General Electives  
Can be fulfilled by a minor or another concentration.

B.S. in Computer Information Technology Prerequisite Chart

* This page is for informational purposes only. Changes to your degree plan or updates to the bulletin may change the list of required classes. You should regularly check with a Computer Science advisor for up-to-date degree requirements and to ensure timely graduation.

Last updated: December 16, 2018
## Computer Networking Minor

**Lower Division Courses**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 1005</td>
<td>Computer Hardware, Software, and Programming Concepts</td>
<td>3</td>
</tr>
</tbody>
</table>

**Upper Division Courses**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 3700</td>
<td>Data Communications and Networking</td>
<td>3</td>
</tr>
</tbody>
</table>

**Upper Division Courses**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 3760</td>
<td>Linux Network Operating System Administration</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>CSCI 3770 - Microsoft Windows Network Operating System Administration</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4520</td>
<td>Network Security</td>
<td>3</td>
</tr>
</tbody>
</table>

**Select two (2) courses from the list below**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 3870</td>
<td>Wireless Communication and Networking</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4670</td>
<td>Network Applications</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4770</td>
<td>Advanced Data Communications and Networking</td>
<td>3</td>
</tr>
</tbody>
</table>

## Computer Science Minor

**Lower Division Courses**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 1010</td>
<td>Introduction to Programming I</td>
<td>3</td>
</tr>
<tr>
<td>and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSCI 2010</td>
<td>Introduction to Programming II</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSCI 2000</td>
<td>Programming and Data Structures using C++</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 2070</td>
<td>Programming in Selected Languages I</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSCI 2080</td>
<td>Programming Selected Languages II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Select one (1) of the math courses listed below**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1730</td>
<td>Precalculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 1810</td>
<td>Elements of Calculus</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1910</td>
<td>Calculus and Analytic Geometry</td>
<td>4</td>
</tr>
</tbody>
</table>

**Upper Division Courses**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 3400</td>
<td>Computer Organization I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Select six (6) credit hours of computer science courses listed below**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 3005</td>
<td>Object Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 3250</td>
<td>Data Structure and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 3410</td>
<td>Computer Organization II</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4010</td>
<td>Mobile Software Development I</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4020</td>
<td>Mobile Software Development II</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4230</td>
<td>Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4270</td>
<td>Algorithm Design and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4350</td>
<td>Compiler Design</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4450</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4550</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4600</td>
<td>Introduction to Software Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

## Information Assurance and Security Minor

**Lower Division Courses**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 1005</td>
<td>Computer Hardware, Software, and Programming Concepts</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSCI 1010</td>
<td>Introduction to Programming I</td>
<td>3</td>
</tr>
</tbody>
</table>
### Upper Division Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 3200</td>
<td>Principles of Information Security</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 3600</td>
<td>Computer Ethics</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 3700</td>
<td>Data Communications and Networking</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4520</td>
<td>Network Security</td>
<td>3</td>
</tr>
</tbody>
</table>

Select three (3) courses from the list below:

- CSCI 3601: Computer Forensics and Incident Response
- CSCI 3602: Securing Cyber Space (Web, DB, and Platform)
- CSCI 3603: Cryptography
- CSCI 3607: IAS/Security Policy and Governance
- CSCI 3619: Ethical Hacking and Offensive Security
- CSCI 3624: System Vulnerability Analysis and Auditing
- CSCI 3625: Intrusion Detection and Prevention
- CSCI 3628: IAS/Defensive Programming
- CSCI 3630: IAS/Secure Software Engineering

### Mobile Software Technology Minor

**Lower Division Courses**  
(6 to 7 hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 1010</td>
<td>Introduction to Programming I</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSCI 1015</td>
<td>Introduction to Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSCI 2000</td>
<td>Programming and Data Structures using C++</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 2070</td>
<td>Programming in Selected Languages I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Upper Division Courses**  
(18 hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 3300</td>
<td>Introduction to Web Development</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 3350</td>
<td>Web User Interface Design</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4000</td>
<td>Advanced Web Development</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSCI 4650</td>
<td>Introduction to ASP.NET Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4010</td>
<td>Mobile Software Development I</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4020</td>
<td>Mobile Software Development II</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4400</td>
<td>Principles of Database Management</td>
<td>3</td>
</tr>
</tbody>
</table>

### Web Technology Minor

**Lower Division Courses**  
(6 hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 1005</td>
<td>Computer Hardware, Software, and Programming Concepts</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 1015</td>
<td>Introduction to Computer Programming</td>
<td>3</td>
</tr>
</tbody>
</table>

**Upper Division Courses**  
(15 hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 3300</td>
<td>Introduction to Web Development</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 3350</td>
<td>Web User Interface Design</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4000</td>
<td>Advanced Web Development</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4400</td>
<td>Principles of Database Management</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 4650</td>
<td>Introduction to ASP.NET Programming</td>
<td>3</td>
</tr>
</tbody>
</table>
Computer Networking Minor Prerequisite Chart

CSCI 1005
Com Hardware Software & Prog

CSCI 3700
Data Com. & Networking

CSCI 3700 (choice)
MS Win. Network O.S. Admin.

CSCI 3760 (choice)
Linux Network O.S. Admin.

CSCI 3870 (choice)
Wireless Comm. & Networking

CSCI 4520
Network Security

CSCI 4770 (choice)
Adv. Data Comm. & Networking

Computer Science Minor Prerequisite Chart

CSCI 2070
Programming Selected Lang. I

CSCI 2010
Intro. to Programming I

CSCI 2010
Intro. to Programming II

CSCI Elective

CSCI Elective

CSCI 3300
Intro. to Web Development

CSCI 4020
Mobile Software Development II

CSCI 4770 (choice)
Adv. Data Comm. & Networking

Information Assurance & Security Minor Prerequisite Chart

CSCI 3700
Data Com. & Networking

CSCI 1005
Com Hardware Software & Prog

CSCI 3200
Principles of Info. Security

CSCI 3601
Comp. Forensics & Incid. Resp.

CSCI 3600
Computer Ethics

CSCI 3602
Securing Cyber Space

CSCI 3603
Cryptography

CSCI 3760
Linux Network O.S. Adm.

CSCI 3770
Data Com. & Networking

CSCI 3870 (choice)
Wireless Comm. & Networking

CSCI 3870 (choice)
Network Security

CSCI 3200
Principles of Info. Security

Mobile Software Technology Minor Prerequisite Chart

CSCI 1010
Introduction to Programming I

CSCI 2070
Programming in Selected Lang. I

CSCI 3200
Principles of Info. Security

CSCI 4010
Mobile Software Development I

CSCI 3300
Intro. to Web Development

CSCI 4020
Mobile Software Development II

CSCI 3350
Web User Interface Design

CSCI 4000 (choice)
Intro. to ASP.NET Programming

CSCI 3350
Web User Interface Design

CSCI 4000
Advanced Web Development

CSCI 4020
Mobile Software Development II

CSCI 4000 (choice)
Advanced Web Development

Web Technology Minor Prerequisite Chart

CSCI 1015
Intro. to Computer Programming

CSCI 33300
Intro. to Web Development

CSCI 4400
Advanced Web Development

CSCI 1005
Com Hardware Software & Prog

CSCI 33350
Web User Interface Design

CSCI 4400
Advanced Web Development

CSCI 4650
Intro. to ASP.NET Programming

CSCI 4650
Intro. to ASP.NET Programming

CSCI 3350
Web User Interface Design

CSCI 4000
Advanced Web Development

* This page is for informational purposes only. Changes to your degree plan or updates to the bulletin may change the list of required classes. You should regularly check with a Computer Science advisor for up-to-date degree requirements and to ensure timely graduation.
General Education Core

<table>
<thead>
<tr>
<th>Core Area</th>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Communications</td>
<td>ENGL 1010</td>
<td>English Composition I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ENGL 1020</td>
<td>English Composition II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COMM 2045</td>
<td>Public Speaking</td>
<td>3 (previously COMM 1010)</td>
</tr>
<tr>
<td>II History</td>
<td>HIST 2010</td>
<td>Early United State History</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>HIST 2020</td>
<td>Modern United States History</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>HIST 2030</td>
<td>History of Tennessee</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>HIST 2310</td>
<td>Early World History</td>
<td>3 (previously HIST 1210)</td>
</tr>
<tr>
<td></td>
<td>HIST 2320</td>
<td>Modern World History</td>
<td>3 (previously HIST 1220)</td>
</tr>
<tr>
<td>III Humanities</td>
<td>ENGL 2330</td>
<td>Topics in World Literature</td>
<td>3 (previously ENGL 2030)</td>
</tr>
<tr>
<td>and/or Fine Arts</td>
<td>ART 1035</td>
<td>Introduction to Art</td>
<td>3 (previously ART 1030)</td>
</tr>
<tr>
<td></td>
<td>DANC 1200</td>
<td>Introduction to Dance</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MUS 1030</td>
<td>Introduction to Music</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MUS 2030</td>
<td>World Music</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MUS 2200</td>
<td>Popular World Music</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PHIL 1030</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PHIL 1040</td>
<td>Introduction to Ethics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PHIL 2200</td>
<td>Religion and the World</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>THEA 1030</td>
<td>Introduction to Theatre</td>
<td>3</td>
</tr>
<tr>
<td>IV Mathematics</td>
<td>MATH 1010</td>
<td>Mathematical Thought and Practice</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 1110</td>
<td>Algebraic Problem Solving</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 1420</td>
<td>Structure of Mathematical Systems II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 1530</td>
<td>Elements of Statistics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 1710</td>
<td>Precalculus Algebra</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 1730</td>
<td>Precalculus</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 1810</td>
<td>Elements of Calculus</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 1910</td>
<td>Calculus and Analytic Geometry</td>
<td>4</td>
</tr>
<tr>
<td>V Natural Sciences</td>
<td>ASTR 1010/1011</td>
<td>Planetary Astronomy (and lab)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ASTR 1020/1021</td>
<td>Stellar Astronomy (and lab)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>BIOL 1010/1011</td>
<td>Introduction to Biology (and lab)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>BIOL 1020/1021</td>
<td>Diversity of Life (and lab)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>BIOL 1040/1041</td>
<td>Human Biology (and lab)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>BIOL 1110/1111</td>
<td>General Biology I (and lab)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>BIOL 1120/1121</td>
<td>General Biology II (and lab)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>BIOL 2010/2011</td>
<td>Human Anatomy and Physiology I (and lab)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>BIOL 2020/2021</td>
<td>Human Anatomy and Physiology II (and lab)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>CHEM 1010/1011</td>
<td>Introductory Chemistry I (and lab)</td>
<td>4</td>
</tr>
</tbody>
</table>

* This page is for informational purposes only. Changes to your degree plan or updates to the bulletin may change the list of required classes. You should regularly check with a Computer Science advisor for up-to-date degree requirements and to ensure timely graduation.  
Last updated: December 16, 2018
CHEM 1020/1021 - Introductory Chemistry II (and lab) 4
CHEM 1110/1111 - General Chemistry I (and lab) 4
CHEM 1120/1121 - General Chemistry II (and lab) 4
CHEM 1710/1711 - Introduction to Chemistry and Physics (and lab) 4

or

PHYS 1710 - Introduction to Chemistry and Physics 4

GEOL 1040/1041 - Physical Geology (and lab) 4
GEOL 1050/1051 - Historical Geology (and lab) 4
PHYS 1010/1011 - Understanding Physical World (and lab) 4
PHYS 1020/1021 - Understanding Physical World (and lab) 4
PHYS 2010/2011 - College Physics I (and lab) 4 (Algebra/Trigonometry-based)
PHYS 2020/2021 - College Physics II (and lab) 4 (Algebra/Trigonometry-based)
PHYS 2110/2111 - University Physics I (and lab) 4 (Calculus-based)
PHYS 2120/2121 - University Physics II (and lab) 4 (Calculus-based)

VI Social and Behavioral Sciences (6 hours)
Complete two (2) courses from different disciplines from the list below

AAST 2200 - Introduction African American Studies 3
COMM 2020 - Media, Society and Individual 3
ECON 2100 - Principles of Macroeconomics 3
GEOG 1015 - Physical Geography 3 (previously GEOG 1010)
GEOG 1035 - World Regional Geography I 3 (previously GEOG 1020)
GEOG 1045 - World Regional Geography 2 3 (previously GEOG 1030)
HHP 1250 - Wellness Concepts and Practice 3
LDS 2100 - Foundations of Leadership 3
POLS 2000 - Introduction to Politics 3
POLS 2010 - American National Government 3
POLS 2040 - Introduction to Public Policy 3
POLS 2070 - International Politics 3
PSY 1010 - General Psychology 3
PSY 1050 - Psychology of Modern Culture 3
SOC 1010 - Introduction to Sociology 3 (previously SOC 2010)
SOC 1040 - Social Problems 3
SOC 2900 - Marriage and the Family 3
WGS 2050 - Women and Culture: Introduction to Women's and Gender Studies 3

* This page is for informational purposes only. Changes to your degree plan or updates to the bulletin may change the list of required classes. You should regularly check with a Computer Science advisor for up-to-date degree requirements and to ensure timely graduation.