

# COMPUTER SCIENCE AND INFORMATION SYSTEMS

## Information Sheet

The Department of Computer Science and Information Technology offers a Bachelor of Science degree with a major in Computer Science and Information Systems. There are four areas of study or concentrations available under this major.

- **Computer Science Concentration** This program concentrates on the technical areas of computing with an emphasis on programming and algorithm design. It includes a significant mathematics component.
- **Information Systems Concentration** This program is intended for those who plan to work in some area of computer applications in the business field. Areas of study include data communications, database management, and systems analysis and design, along with an emphasis on programming in several languages that are useful for business applications.
- **Internet and Web Technology** This concentration trains students in the development and support of Internet applications. It emphasizes the construction of Web sites and the use of scripting languages.
- **Database Administration** This program trains students in the design, implementation, and administration of databases, including those accessed by Web applications.

Each of these concentrations requires that the student complete the Liberal Arts Core Requirements and the requirements for a minor. The Department of Computer Science and Information Technology is located on the third floor of the Claxton Building. There are currently about 400 Computer Science and Information Systems majors from which come 30-40 graduates each year. Transfer students and non-traditional students are welcome in the Department.

The Department also offers minors in Computer Science and Computer Networking.

The Department offers a number of scholarships to students who qualify each year with additional financial assistance available through student employment in the Department.

The APSU Student Chapter of ACM is available for student participation.

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

For more information, contact

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**BACHELOR OF SCIENCE DEGREE IN COMPUTER SCIENCE AND INFORMATION SYSTEMS**  
**COMPUTER SCIENCE CONCENTRATION**

The Department of Computer Science and Information Technology offers a Bachelor of Science degree with a major in Computer Science and Information Systems. The Computer Science Concentration covers the technical areas of computing with an emphasis on programming and algorithm design. It includes a significant mathematics component.

**I. Communications - 9 hours**

- \_\_\_ ENGL 1010 (3)
- \_\_\_ ENGL 1020 (3)
- \_\_\_ COMM 1010 (3)

**II. History - 6 hours**

- \_\_\_ HIST 2010 (3)
- \_\_\_ HIST 2020 (3)

**III. Humanities - 9 hours**

- \_\_\_ ENGL 2030 (3)
- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ \_\_\_\_\_ (3)

**IV. Natural Sciences - 8 hours**

- \_\_\_ \_\_\_\_\_ (4)
- \_\_\_ \_\_\_\_\_ (4)

**V. Mathematics (select one option 3-6 hrs) Satisfied by Major.**

**VI. Social and Behavioral Sciences - 6 hours**

- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ APSU 1000 (1)

**COMPUTER SCIENCE**

- \_\_\_ CSCI 1010 (3)
- \_\_\_ CSCI 2010 (3)
- \_\_\_ CSCI 3250 (3)
- \_\_\_ CSCI 3400 (3)
- \_\_\_ CSCI 3410 (3)
- \_\_\_ CSCI 4100 (3)
- \_\_\_ CSCI 4230 (3)
- \_\_\_ CSCI 4800 (1)

**Select one from**

- \_\_\_ CSCI 2060 (3)
- \_\_\_ CSCI 2070 (3)
- \_\_\_ CSCI 2080 (3)

**Select two from**

- \_\_\_ CSCI 3005 (3)
- \_\_\_ CSCI 3500 (3)
- \_\_\_ CSCI 4350 (3)
- \_\_\_ CSCI 4400 (3)
- \_\_\_ CSCI 4450 (3)
- \_\_\_ CSCI 4500 (3)
- \_\_\_ CSCI 4550 (3)
- \_\_\_ CSCI 4600 (3)
- \_\_\_ CSCI 4700 (3)

**Others required:**

- \_\_\_ MATH 1910 (5)
- \_\_\_ MATH 1920 (5)
- \_\_\_ MATH 3000 (3)
- \_\_\_ MATH 3450 (3)
- \_\_\_ MATH 4670 (3)

**Course Selection Worksheet**

CRN	Subject	Crse #	Sec #	Credits	Time	Mon	Tues	Wed	Thurs	Fri	Sat	Location

Fall       Spring       Summer I       Summer II       Year \_\_\_\_\_

Student Name: \_\_\_\_\_ ID: \_\_\_\_\_

Alternate PIN: \_\_\_\_\_ Student Signature: \_\_\_\_\_

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**BACHELOR OF SCIENCE DEGREE IN COMPUTER SCIENCE AND INFORMATION SYSTEMS**  
**INFORMATION SYSTEMS CONCENTRATION**

The Department of Computer Science and Information Technology offers a Bachelor of Science degree with a major in Computer Science and Information Systems. The Information Systems Concentration is intended for those who plan to work in some area of computer applications in the business field. Areas of study include data communications, database management, and systems analysis and design, along with an emphasis on programming in several languages that are useful for business applications.

**I. Communications - 9 hours**

- \_\_\_ ENGL 1010 (3)
- \_\_\_ ENGL 1020 (3)
- \_\_\_ COMM 1010 (3)

**II. History - 6 hours**

- \_\_\_ HIST 2010 (3)
- \_\_\_ HIST 2020 (3)

**III. Humanities - 9 hours**

- \_\_\_ ENGL 2030 (3)
- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ \_\_\_\_\_ (3)

**IV. Natural Sciences - 8 hours**

- \_\_\_ \_\_\_\_\_ (4)
- \_\_\_ \_\_\_\_\_ (4)

**V. Mathematics (select one option 3-6 hrs) Satisfied by Major.**

**VI. Social and Behavioral Sciences - 6 hours**

- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ APSU 1000 (1)

**INFORMATION SYSTEMS**

- \_\_\_ CSCI 1010 (3)
- \_\_\_ CSCI 2010 (3)
- \_\_\_ CSCI 2060 (3)
- \_\_\_ CSCI 2070 (3)
- \_\_\_ CSCI 3020 (3)
- \_\_\_ CSCI 3200 (3)
- \_\_\_ CSCI 3400 (3)
- \_\_\_ CSCI 3700 (3)
- \_\_\_ CSCI 4100 (3)
- \_\_\_ CSCI 4400 (3)
- \_\_\_ CSCI 4750 (3)
- \_\_\_ CSCI 4800 (1)
- \_\_\_ MATH 1530 (3)
- \_\_\_ ENGL 1100 (3)

- Select one from**
- \_\_\_ MATH 1810 (3)
  - \_\_\_ MATH 1910 (5)

Minor in General Business is suggested.

**Course Selection Worksheet**

CRN	Subject	Crse #	Sec #	Credits	Time	Mon	Tues	Wed	Thurs	Fri	Sat	Location

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**BACHELOR OF SCIENCE DEGREE IN COMPUTER SCIENCE AND INFORMATION SYSTEMS**  
**DATABASE ADMINISTRATION CONCENTRATION**

The Department of Computer Science and Information Technology offers a Bachelor of Science degree with a major in Computer Science and Information Systems. The Database Administration concentration trains students in the design, implementation, and administration of databases, including those accessed by Web applications.

**I. Communications - 9 hours**

- \_\_\_ ENGL 1010 (3)
- \_\_\_ ENGL 1020 (3)
- \_\_\_ COMM 1010 (3)

**II. History - 6 hours**

- \_\_\_ HIST 2010 (3)
- \_\_\_ HIST 2020 (3)

**III. Humanities - 9 hours**

- \_\_\_ ENGL 2030 (3)
- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ \_\_\_\_\_ (3)

**IV. Natural Sciences - 8 hours**

- \_\_\_ \_\_\_\_\_ (4)
- \_\_\_ \_\_\_\_\_ (4)

**V. Mathematics (select one option 3-6 hrs) Satisfied by Major.**

**VI. Social and Behavioral Sciences - 6 hours**

- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ APSU 1000 (1)

**DATABASE ADMINISTRATION**

- \_\_\_ CSCI 1005 (3)
- \_\_\_ CSCI 3000 (3)
- \_\_\_ CSCI 3200 (3)
- \_\_\_ CSCI 3300 (3)
- \_\_\_ CSCI 3700 (3)
- \_\_\_ CSCI 4400 (3)
- \_\_\_ CSCI 4750 (3)
- \_\_\_ CSCI 4800 (1)
- \_\_\_ CSCI 4940 (3)
- \_\_\_ GB 3010 (3)

**Select one from**

- \_\_\_ CSCI 4410 (3)
- \_\_\_ CSCI 4420 (3)
- \_\_\_ CSCI 4430 (3)

**Select one from**

- \_\_\_ CSCI 4610 (3)
- \_\_\_ CSCI 4650 (3)

**Select one from**

- \_\_\_ CSCI 1015 (3)
- \_\_\_ CSCI 1016 (3)

**Course Selection Worksheet**

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**BACHELOR OF SCIENCE DEGREE IN COMPUTER SCIENCE AND INFORMATION SYSTEMS**  
**INTERNET AND WEB TECHNOLOGY CONCENTRATION**

The Department of Computer Science and Information Technology offers a Bachelor of Science degree with a major in Computer Science and Information Systems. The Internet and Web Technology concentration trains students in the development and support of Internet applications. It emphasizes the construction of Web sites and the use of scripting languages.

**I. Communications - 9 hours**

- \_\_\_ ENGL 1010 (3)
- \_\_\_ ENGL 1020 (3)
- \_\_\_ COMM 1010 (3)

**II. History - 6 hours**

- \_\_\_ HIST 2010 (3)
- \_\_\_ HIST 2020 (3)

**III. Humanities - 9 hours**

- \_\_\_ ENGL 2030 (3)
- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ \_\_\_\_\_ (3)

**IV. Natural Sciences - 8 hours**

- \_\_\_ \_\_\_\_\_ (4)
- \_\_\_ \_\_\_\_\_ (4)

**V. Mathematics (select one option 3-6 hrs) Satisfied by Major.**

**VI. Social and Behavioral Sciences - 6 hours**

- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ \_\_\_\_\_ (3)
- \_\_\_ APSU 1000 (1)

**INTERNET & WEB TECHNOLOGY**

- \_\_\_ CSCI 1005 (3)
- \_\_\_ CSCI 3200 (3)
- \_\_\_ CSCI 3300 (3)
- \_\_\_ CSCI 3700 (3)
- \_\_\_ CSCI 4000 (3)
- \_\_\_ CSCI 4050 (3)
- \_\_\_ CSCI 4400 (3)
- \_\_\_ CSCI 4630 (3)
- \_\_\_ CSCI 4750 (3)
- \_\_\_ CSCI 4800 (1)
- \_\_\_ CSCI 4940 (3)

- Select one from**
- \_\_\_ CSCI 4390 (3)
  - \_\_\_ CSCI 4650 (3)
- Select one from**
- \_\_\_ CSCI 1015 (3)
  - \_\_\_ CSCI 1016 (3)

**Course Selection Worksheet**

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COMPUTER SCIENCE & INFORMATION TECHNOLOGY DEPARTMENT  
NETWORKING MINOR

The minor in computer networking is intended to help students to expand their career opportunities due to the wide spread use of networks in a broad range of industries. Students will understand the fundamentals of computer networking along with implementing these networks. Students will gain hand-on experience of networking administration and management with real networking hardware and software in a networking lab. The minor also emphasizes on wireless networking, network security, and network applications.

**Required Courses**

- |                 |     | One from        | Two from        |
|-----------------|-----|-----------------|-----------------|
| • CSCI 1005 (3) |     | • CSCI 3760 (3) | • CSCI 3870 (3) |
| • CSCI 3700 (3) | and | • CSCI 3770 (3) | • CSCI 4670 (3) |
| • CSCI 4520 (3) |     |                 | • CSCI 4770 (3) |

**CSCI 1005 Computer Hardware, Software, and Programming Concepts (3)**

An introductory course with a focus on computer technology. Topics include computer hardware and software, operating systems, networking, databases, and ethical issues in computing. An introduction to some programming and programming concepts is included.

**CSCI 3700 Data Communications and Networking (3)** *Prerequisite: CSCI 1005 or 1010*

Fundamental concepts, definitions, and theory of telecommunications and networking with practical applications. Special emphasis is on Internet Technology, including the study of TCP/IP protocols. Other topics include LAN and WAN management, security, and quality of service issues.

**CSCI 3760 Linux Network Operating System Administration (3)** *Prerequisite: CSCI 3700*

This course covers the fundamental Linux system administration and Linux network administration principles. Topics covered include: directory tree, file and memory management, system monitoring, user accounts, TCP/IP configuration, name service and address translation, firewall, IP accounting, email service, and web services.

**CSCI 3770 Microsoft Windows Network Operating System Administration (3)** *Prerequisite: CSCI 3700*

This course covers the fundamental Windows system administration and Windows network administration principles. Topics covered include directory structures, file management, user management, domains, group policy, and networking services provided as part of Windows, including IIS, RRAS, DNS, WINS, and DHCP.

**CSCI 3870 Wireless Communications and Networking (3)** *Prerequisite: CSCI 3700*

This course covers data communications as well as voice communications in wireless networks. Topics covered include wireless standards in data and voice communications, radio frequency technologies, wireless LAN hardware and software, wireless network design, installation, and management including security and site surveys.

**CSCI 4520 Network Security (3)** *Prerequisite: CSCI 3700*

An examination of the tools, techniques, and technologies used in the securing of information assets via networks. Topics covered include network operating system security, security of transmissions, firewall configurations, vulnerabilities and hardening of network components, Web and distributed system security, and procedures dealing with storage and disposition of sensitive data.

**CSCI 4670 Network Applications (3)** *Prerequisite: CSCI 3700*

This course introduces a variety of network applications and services. Topics covered include WWW and HTTP, FTP, Telnet and SSH, Email (POP3 and SMTP), Usenet, P2P, VNC, remote access, chat room, and instant messaging service.

**CSCI 4770 Advanced Data Communications and Networking (3)** *Prerequisite: CSCI 3760 or 3770*

This course is an advanced study of telecommunications and networking. Topics include an in-depth study of TCP/IP protocols, switching, routing, WAN technology, network administration, and emerging technologies.