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LaGrange College

Course Catalog - Computer Science

B.S. in Computer Science - B.S. in Computer Science

Type: Major

Minor in Computer Science - Minor in Computer Science

Type: Minor

The minor in computer science is comprised of courses taken at LC and courses taken at partner institutions. Students must take at least six credit hours at the 3000-level or higher to earn the minor.

Courses in the following categories marked with a (P) may be taken through partner institutions.

CSCI 1060 - Introduction to Computers and Technical Support Fundamentals

This course is the first of a series that prepares students for a role as an entry-level IT Support Specialist. In this course, students will be introduced to the world of Information Technology, or IT. Students will also learn about the different facets of Information Technology, like computer hardware, the Internet, computer software, troubleshooting, and customer service.

Upon completion, students will be able to:

- Demonstrate understanding of the binary system.

- Demonstrate assembly of a computer from scratch.
- Express rationale for choosing an operating system for specified applications.
- Demonstrate installation an operating system on a computer.
- Express understanding of the Internet, including what it is, how it works, and the impact it has in the modern world.
- Express understanding how applications are created and how they work on the hardware a computer.
- Demonstrate use of common problem-solving methodologies and soft skills in an Information Technology setting.

Grade Basis: P
Credit hours: 3.0
Lecture hours: 3.0

CSCI 2010 - System Administration

This course transitions understanding from working on single computers to maintaining reliable computers systems in a multi-user environment. In this course, students will learn about the infrastructure services that keep all organizations, big and small, functional. Special emphasis is given to cloud infrastructure setups and how to manage cloud resources. Management and configuration of servers and how to use industry tools to manage computers, user information, and user productivity is discussed. Disaster recovery of an IT infrastructure rounds out the content of the course.

Upon completion, students will be able to:

- Demonstrate use of best practices for choosing hardware, vendors, and services for your organization.
- Express understanding of the functionality of most common infrastructure services and of how to manage infrastructure servers.
- Express understanding of how to optimize cloud services for an organization.
- Manage an organization’s computers and users using the directory services, Active Directory, and OpenLDAP.
- Express the ability to choose and manage the tools that an organization could use.
- Demonstrate the ability to backup an organization’s data and how to recover an IT infrastructure in the case of a disaster.
- Demonstrate use of systems administration knowledge to plan and improve processes for IT environments.

Grade Basis: P
Credit hours: 3.0
Lecture hours: 3.0

CSCI 2020 - Introduction to Cybersecurity

This course examines a variety of IT security concepts, tools, and best practices, specifically threats and attacks and how they are presented. Topics of the course include encryption algorithms and their uses, authentication, authorization, and accounting, and network security solutions, ranging from firewalls to Wifi encryption options. Philosophies and best practices for organizational security are integrated throughout the course.

Upon completion, students will be able to:

- Express understanding of how various encryption algorithms and techniques work as well as their benefits and limitations.
- Express understanding of various authentication systems and types.
- Express understanding of the difference between authentication and authorization.
- Communicate how to evaluate potential risks and recommend ways to reduce risk.
- Demonstrate and express understanding of best practices for securing a network.
- Help others to grasp security concepts and protect themselves.

Grade Basis: P
Credit hours: 3.0
Lecture hours: 3.0

CSCI 2030 - Network Fundamentals

This course transitions understanding from working on single computers to maintaining reliable computers systems in a multi-user environment. In this course, students will learn about the infrastructure services that keep all organizations, big and small, functional. Special emphasis is given to cloud infrastructure setups and how to manage cloud resources. Management and configuration of servers and how to use industry tools to manage computers, user information, and user productivity is discussed. Disaster recovery of an IT infrastructure rounds out the content of the course.

Upon completion, students will be able to:

- Express computer networks in terms of a five-layer model.
- Demonstrate understanding all of the standard protocols involved with TCP/IP communications.
- Demonstrate and/or express network troubleshooting tools and techniques.
- Express understanding of network services like DNS and DHCP that help make computer networks run.
- Demonstrate an understanding of cloud computing, everything as a service, and cloud storage.

Grade Basis: P
Credit hours: 3.0
Lecture hours: 3.0

CSCI 2040 - Introduction to Operating Systems

Students will learn about the main components of an operating system and how to perform critical tasks like managing software and users, and configuring hardware.

Upon completion, students will be able to:

- Demonstrate navigation of the Windows and Linux filesystems using a graphical user interface and command line interpreter.
- Create users, groups, and permissions for account access.
- Install, configure, and remove software on the Windows and Linux operating systems.
- Configure disk partitions and filesystems.
- Express understanding of how system processes work and how to manage them.
- Express understanding of system logs.
- Demonstrate use of remote connection tools.
- Utilize operating system knowledge to troubleshoot common issues in an IT Support Specialist role.

Grade Basis: P
Credit hours: 3.0
Lecture hours: 3.0

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