

Spring Semester 2019

Course Syllabus

- Security Basics
- Graphic Software
- Software Development (C#)



South Central College

COMP 2475 Security Basics

Course Outcome Summary

Course Information

Description	An introduction to the various technical and administrative aspects of Information Security (INFOSEC), this course provides the foundation for understanding the key issues associated with protecting information assets, determining the levels of protection and response to security incidents, and designing a consistent, reasonable information security system with appropriate intrusion detection and reporting features. Students will be exposed to a wide spectrum of security activities, methods, methodologies, and procedures. The terminal objectives for this course as defined in NSTISSI Training Standards 4011 are: 1. Understand the threats to and vulnerabilities of information systems 2. Recognize the need to protect data, information, and the means to process it 3. Develop a working knowledge of INFOSEC principles and practices 4. Design, execute, and evaluate INFOSEC security procedures and practices (Prerequisites: COMP 1360)
Total Credits	4.00
Total Hours	64.00

Types of Instruction

Instruction Type	Credits/Hours
Lecture	4/64

Pre/Corequisites

COMP 1360

Course Competencies

1. Explain the fundamental concepts of information security.

Learning Objectives

Define the key terms and critical concepts of information security.
Describe the purpose of information security and the CIA triad.
Explain how information security differs from computer security.
Explain principle of least privilege, defense-in-depth, and separation of duties.
Define threat agent, action, asset in the context of information security.
Explain the concepts of a kill-chain and the IT controls matrix.

2. Explain the security function and purpose of network devices and technologies and the proper use of these devices to design a secure network.

Learning Objectives

List the major protocols used for secure network communication.

Apply and implement secure network administration principles.

Demonstrate secure network design principles such as subnetting, segmenting, DMZ, and NAT.

List network-based tools capable of detecting an information security incident such as network vulnerability scanners, netflow monitoring, and network intrusion detection systems.

3. Identify and remediate common operating-system vulnerabilities.

Learning Objectives

Explain the challenges involved in patching systems and common approaches to patch management.

Explain the challenges in reducing user privileges and common approaches to privilege management.

List tools available for auditing operating-system security.

List host-based tools capable of detecting an information security incident such as file integrity monitoring and host intrusion detection systems.

4. Explain cryptography and implement cryptographic systems.

Learning Objectives

Summarize general cryptography concepts such as symmetric and asymmetric encryption, hashing, and non-repudiation.

Apply appropriate cryptographic tools, techniques, and procedures.

Explain the core concepts of public-key cryptography.

Explain cryptographic attacks such as replay, man-in-the-middle, side-channel attacks, and brute force attacks.

Remediate cryptographic attacks such as replay, man-in-the-middle, side-channel attacks, and brute force attacks.

5. Identify and remediate common application-layer vulnerabilities found in web applications.

Learning Objectives

Explain XSS, CSRF, SQLi, and other vulnerabilities present in many web applications.

Demonstrate ability to find these vulnerabilities in code or using pentesting tools.

Explain how to remediate common vulnerabilities present in many web applications.

6. Explain important state and federal laws regarding computer crime.

Learning Objectives

Summarize the Computer Fraud and Abuse Act, Electronic Communications Privacy Act, Stored Communication Act, and the PATRIOT act.

Explain where to find State of Minnesota laws regarding computer crime.

Explain basic concepts of criminal law such as arrest, prosecute, convict, and the role of the 5th amendment.

7. Defend against offensive security techniques.

Learning Objectives

Describe the five phases of a malicious attack.

Demonstrate basic proficiency with tools for reconnaissance, scanning, and exploiting target systems.

Analyze and differentiate among types of malware.

Analyze and differentiate among types of attack.

Describe the tools, tactics, and procedures commonly used by attackers.

8. Explain the role that physical security plays in information security.

Learning Objectives

Describe how pin-and-tumbler and wafer locks work and how poor quality locks are defeated.

Describe three classes of fire and the appropriate way to attack such a fire.

Environmental Monitoring, HVAC, Incident Response and Computer Forensics.

Explain the role of the physical component of a comprehensive security program.

List the essential elements of physical access monitoring and control.

9. Develop a business continuity plan.

Learning Objectives

Explain the purpose of hot sites, cold sites, and warm sites.
Explain contingency planning and its relationship to other business plans.
Explain IT service delivery and why the heck a security person cares about it.
Explain contingency planning and its relationship to other business plans
Explain the impact of utility interruptions

10. Develop administrative security controls.

Learning Objectives

Describe the elements of policies, procedures, standards and guidelines.
Describe common information security policies.
Explain the importance of security related awareness and training.
Explain how an organization can institutionalize its information security program.
Create information security policies.

11. Explain industry compliance and operational security.

Learning Objectives

Explain the concept of risk management and how it applies to selection of security controls.
Explain the difference between qualitative and quantitative risk management.
List common industry regulations that are applicable to business functions.
Implement appropriate risk mitigation strategies given a scenario.
Summarize the security implications of integrating systems and data with third parties.

12. Describe incident response and basic forensic procedures.

Learning Objectives

Collect forensic evidence from hard drives, network devices, and server logs.
Explain order of volatility and how it relates to forensic collection.
Summarize common incident response procedures.
Compose a complete incident response report.
Collect indicators of compromise.
Construct incident timeline of events.

SCC Accessibility Statement

If you have a disability and need accommodations to participate in the course activities, please contact your instructor as soon as possible. This information will be made available in an alternative format, such as Braille, large print, or cassette tape, upon request. If you wish to contact the college ADA Coordinator, call that office at 507-389-7222.

Disabilities page: <http://southcentral.edu/Disability-Support-Services/disability-services.html>

About your instructor

Name	John Burns
E-mail Address	John.burns@southcentral.edu
Office	C-156
Address	1920 Lee Boulevard North Mankato MN 56003

Course Focus

The focus of the course will be hands on, with an emphasis being placed on information pertaining to the Security+ Certification examination.

Online Course Materials

You can order Labsim either from the book store or directly from the publisher. Make sure you order the correct ISBN for this course:

Exam Number	Course Title	ISBN
CompTIA Security+ certification exam (SY0-501)	(TestOut Security Pro)	978-1-935080-44-2

1. Students can order the access code direct from the publisher. Academic Pricing is \$117.

The following information is for students who would like to order their training courses direct from TestOut Corp. Please go to <http://www.testout.com/home/student-resources/student-purchasing> and enter (**14-232TA**) in the "Enter Promotion Code" box on the home page and press enter. There are a couple key points we require in before we can validate the order. One, your school name must match exactly the way we have it in our system, which is "**South Central College**." Two, a teacher name must be included, "**John Burns**" though it does not matter how you type their name. During the checkout process a default is set to grant immediate online access. An email with download instructions which will be provided as soon as your order has been finalized. Please follow this link [Getting Started](#) for complete setup instructions, and how to find the class name in LabSim.

2. Students can purchase the access code from the book store. The Cost is \$127.

Bring the ISBN and course number (COMP2475) to the book store.

How your performance will be graded

Grading details

The course grade will be determined from the total accumulated points earned through quizzes, exams, labs and projects. The final grade for this course is determined by dividing the sum of all exams, quizzes, labs and projects by the maximum possible points and then comparing this percentage against the grading scale listed below:

Grading scale

A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	0% - 59%

"+" and "-" grades may be awarded at the discretion of the instructor.

The individual weighting for each component of the final course grade is shown below:

Chapter quizzes	40%
Lab completion (In class and online)	45%
Field Trips (Bonus/Extra credit)	
Final exam	15%

All chapter quizzes are open notes and open Internet.

All projects must meet the published requirements within the time allowed in order for the student to receive full credit. If the project does not meet the requirements, it may be reworked and resubmitted but the student might not receive full credit, depending on the quality of work. If the project does not meet requirements when the allotted time expires, it may no longer be submitted.

Please refer to the course schedule for additional information.

How to succeed in this course

Student contributions

Students are expected to complete all assigned online assignments prior to class, participate in classroom discussions, and turn in all projects when due. Students are also expected to schedule at least 8 hours per week for class preparation, practice, and homework.

Attendance is required at all scheduled classes. Failure to attend class will result in missing assignments, missing quizzes and tests, and poor performance. Attendance is recorded at the start of each class period and reported periodically to college administration. If students have questions about the attendance policy, they should meet with their faculty advisor.

All students are responsible for completing all assigned work by themselves. Cheating on quizzes, and projects as well as violating other academic rules and policies will be dealt with as outlined in the SCC Academic Policies and Procedures.

If students have disabilities that may impact their performance in the course, they should see the instructor no later than the second class meeting. The instructor will assist the students in arranging accommodations so that they may continue to participate in course activities. The information in this syllabus will be made available in alternate formats, such as Braille, large print, or cassette tape, upon request.

GCC 1120 — Graphic Software 1

Course Description: This course will be taught in a hands-on atmosphere learning the basics of a page layout software, vector software and raster software. Students will learn the tools, menus and panels within each of the softwares, and integrate the use of all the softwares for photographs, graphics and layout applications. Students will prepare projects for both print and web environments. (Prerequisites: None)

Prerequisites: None

Credits: 4 Credits/1 lecture, 3 lab — this equals a total of 7 hours worth of time per week

Text and References: Hand-outs may be made available to you.

Tools: Flash Drive

Student Contributions: This is a hands-on course so attendance is crucial — it's imperative you attend class and work in the lab on your assignments. Additional time outside of the class (approximately 2-3 hours per week) may be necessary to complete the course requirements and projects.

Course Schedule: Course meets Tuesdays and Thursdays from 1-2:50 p.m. The lecture/demonstration portion of the course will occur at the beginning of most sessions.

Course Evaluation — Percentage Grading:

97 - 100% A	93 - 96% A-	
90 - 92 % B+	87 - 89% B	83 - 86% B-
80 - 82% C+	77 - 79% C	73 - 76% C-
70 - 72% D+	67 - 69% D	63 - 66% D-
Below 62% . . . F		

- Students will be graded on the completion of projects, quizzes, in-class assignments / assessments, written/applied finals and class attendance. Projects are assigned with deadlines and are graded on specific attributes as listed on each assignment sheet. You will be graded on the quality of your work.

Missing Deadlines

- A project is due **complete** according to the assignment sheet or it is considered late. If a deadline for a project is missed, there will be a reduction of one full grade on that project.
- If a late project is not handed in within a week of the original deadline, a 0 will be given for that project. Example: if a project was due on Thursday, it must be turned in by the end of the day the following Wednesday to receive the reduced points. Exceptions will be made for excused absences. It is **your responsibility** to make arrangements with the instructor and **complete the Assignment Extension Form for each late assignment**. This form must be completed before (or close to) the initial assignment deadline, not the reduced point deadline.
- If you are granted an extension on an assignment, you need to keep up with current assignments and deadlines, as well as managing your time to make up the assignment(s) you missed. At some point in time you need to “double up” on work.

Attendance: Attendance will be taken at the beginning of each session — it's imperative you're on time for attendance. If you have to be absent, you will be expected to call or email me **prior to class** for your absence to be excused, just as you would on the job. Failure to contact me will result in an unexcused absence. Each unexcused absence will result in one full grade reduction on the project currently being worked on.

- If you have an unexcused absence on a test day, you will not be allowed to make up that test, and do not expect the Instructor to fill you in, or give you any of the handouts that support the lecture/demonstrations missed.
- For a prolonged absence, you'll need a written excuse such as a doctor's slip. That's what would be required of you on the job. In the event of a prolonged excused absence I will work with you on prioritizing your assignments.

- If there are any extenuating circumstances in your life, I'll work with you as much as possible. **It is your responsibility to communicate with me, as your instructor, in a timely manner.**

Use of Classroom Time and Equipment: Students will be expected to use our class time and facilities for Graphic Communications projects. This is not the time to work on general education class projects.

Classroom equipment is not to be used for production or printing of freelance projects. Some exceptions can be made. Check with the Instructors.

Copyright Infringement: Students will not copy graphics, photos, music, type or any material from the internet, CDs or DVDs. With some online searches, students can find many free royalty free websites that supply images and music. Some sources for photos and vector artwork available to students are GettyImages.com and creativecommons.org. GettyImages requires an instructor login to the site for student use.

Music, Food, and Beverage: Students can listen to music with ear buds (keep the volume down). Ear buds must be removed when the instructor is speaking.

No meals are to be consumed in the labs. Students can consume covered beverages and snacks in the lab. The room must be kept clean of trash or this privilege will be revoked.

Student Labs: The room and your work areas are expected to be kept neat and clean. Don't leave papers or wrappers laying on the tables or the floor. Children will not be brought into the classrooms and labs.

Phones: Phones must be turned off in the classroom. Phones are not be used during lecture/demonstrations, this includes texting.

Language/Graphics: No inappropriate language or pictures displayed on clothing, desks, on the computers or anywhere in the room.

Cheating/Academic Dishonesty: Copying of projects and tests will result in failure on that project. A notation will be made in the students file. However, students are encouraged to help each other on projects. One of the great things about this program is that we all learn from each other.

See SCC's Academic Dishonesty Policy at <http://southcentral.edu/academic-policies/academic-dishonesty.html>

Professionalism: We're striving for professional-looking work that would be acceptable to our customer and colleagues in industry. If your work does not meet this expectation — please don't bother turning unprofessional work in to me. I will not grade substandard work.

Disability Disclaimer: *South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222. Additional information and forms can be found at: www.southcentral.edu/disability This material can be made available in alternative formats by contacting the Academic Support Center at 507-389-7222.*

Safety/Hazardous Material Disclaimer: *Students will demonstrate safe work habits, use protective safety equipment and have access to Right-to-Know information within lab areas that deal with potentially hazardous material.*

Institutional Core Competencies:

Critical and Creative Thinking — Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies: The following list of course competencies will be addressed in the course. These competencies and goals are directly related to the performance objectives.

- 1 Demonstrate industry-related work ethics and habits.
 - a. Maintain clean work area and be responsible for weekly cleaning assignments.
 - b. Develop ethical habits for working in a digital environment.
- 2 Develop basic established industry principles while working with all software packages.
 - a. Articulate the purpose and appropriate usage of each software.
 - b. Organize folder and file structures in alignment with industry standards.
 - c. Name folder and file structures according to naming conventions.
- 3 Utilize the network for saving files in the proper locations.
 - a. Explain the hierarchical method of folders and files.
 - b. Save files and supporting documents as instructed.
 - c. Back up folder and files on a continuous basis.
- 4 Setup the various software packages' workspace environment.
 - a. Utilize document creation functions and preference settings.
 - b. Differentiate among menu items and all floating panels within each software.
 - c. Utilize common panel shortcuts.
- 5 Create New Documents in each software.
 - a. Change documents settings specific to each project.
 - b. Save common document settings as a specific preset.
- 6 Utilize the selection tools in each software package.
 - a. Differentiate the controls and purpose among the selection tools within each software.
 - b. Manipulate text and graphic frames, lines, basic shapes and individual graphics / graphic selections.
 - c. Use various selection tools for isolating specific areas within a graphic.
- 7 Utilize the various drawing tools in each software.
 - a. Differentiate among the drawing tools and the options available within each tool.
 - b. Manipulate the controls of the various drawing tools.
 - c. Create new strokes and patterns of the various tools.
- 8 Utilize various character settings to control typographic features in each software.
 - a. Use various fonts and type sizes available.
 - b. Manipulate the character attributes of type.
 - c. Manipulate spacing of type such as white space, leading, kerning and tracking.
 - d. Use glyph, drop cap, special characters and slanted text features.
 - e. Create layouts utilizing various character settings.
- 9 Explain the functions of the various type tools in each software.
 - a. Create text frames and text paths with various type tools.
 - b. Select and highlight text insertion point.
 - c. Use editing features such as copy, paste and cut.
 - d. Manipulate text frame features such as columns, frame insets, vertical alignment, etc.
 - e. Create outlines of type.
- 10 Explain the functions of the various transformation tools in each software.
 - a. Utilize the various transformation tools such as scaling, shearing, rotating and cropping.
 - b. Manipulate images and image frame with transformation tools such as scaling, rotating, cropping, etc.
- 11 Explain the functions of the various modification and navigation tools in each software.
 - a. Use the modification and navigations tools to efficiently move around your project.
 - b. Utilize keyboard shortcuts with these tools to work more efficiently within each software.
 - c. Use tools to change document views.
- 12 Use the various grids and guides in each software.
 - a. Manipulate and use rulers, margin, column and all other guides.
 - b. Show, hide and lock guides.
 - c. Change preference settings of specific guides to customize the work environment.
- 13 Import various graphical images.
 - a. Place images into the page layout.
 - b. Differentiate between the selection and direct-selection tool while working with images.
 - c. Explain the importance of maintaining proportional graphics when placing into document.
 - d. Size raster graphics to place at 100% in the page layout.
- 14 Manage image links in each software.
 - a. Explain the importance of linking graphics within a page layout.
 - b. Organize file and folder structure for links of each page layout.
 - c. Update, relink and edit graphical links.
- 15 Use the color panel and swatches panel to control color in each software.
 - a. Add, delete, and edit color swatches panel.
 - b. Differentiate among the various color models and matching systems-RGB, CYMK, Spot, etc.
 - c. Utilize the stroke and fill tools to apply the proper color elements for various items on layout.
 - d. Utilize foreground/background colors.

- 16 Utilize image editing tools and panels to enhance various graphics.
 - a. Work within the various color modes - RGB, CMYK, Lab, etc.
 - b. Utilize various filters, blends and special effects to create desired graphic.
 - c. Differentiate among tools, panels and menu items to enhance graphic.
- 17 Create various layouts.
 - a. Develop composite layouts.
 - b. Demonstrate skills for working with vector and raster graphics.
 - c. Demonstrate skills for working with text and graphic layouts.
 - d. Demonstrate appropriate resolution for print and web graphics and layouts.
- 18 Output files to various printing devices.
 - a. Utilize the Print Preferences for outputting files.
 - b. Work within softwares for print settings and proper outputs.
 - c. Load paper, ink cartridges and toner cartridges as necessary to the various printers.
 - d. Operate the high-end output devices.
- 19 Export original file to various file formats within software packages.
 - a. Manipulate the settings for appropriate file creation.
 - b. Differentiate among the various settings for specific file format type.
- 20 Explore interactive features within the various software packages.
 - a. Illustrate movement of graphics and shapes within an animation.
 - b. Illustrate movement of type within an animation.
 - c. Produce interactive objects and fields.

Spring Semester 2019 Final Exam Schedule — May 8-15, 2019

Wednesday, May 8, 2019

All day classes that meet one time per week on Wednesdays: examination time is regularly scheduled class meeting time

Thursday, May 9, 2019

All day classes that meet one time per week on Thursdays: examination time is regularly scheduled class meeting time

Friday, May 10, 2019

All day and evening classes that meet one time per week on Fridays: examination time is regularly scheduled class meeting time

Saturday, May 11, 2019

All classes that meet one time per week on Saturdays: examination time is regularly scheduled class meeting time

Monday, May 13, 2019: All day classes with initial weekly meeting of Monday at an even hour:

Class Period / Examination Time

8:00 – 8:50 a.m. / 8:00 – 9:50 a.m.

10:00 – 10:50 a.m. / 10:00 – 11:50 a.m.

12:00 – 12:50 p.m. / 12:00 – 1:50 p.m.

2:00 – 2:50 p.m. / 2:00 – 3:50 p.m.

4:00 – 4:50 p.m. / 4:00 – 5:50 p.m.

All evening classes with weekly meeting on Mondays after 5:00 p.m.: examination time is regularly scheduled class meeting time

Tuesday, May 14, 2019: All day classes with initial weekly meeting of Tuesday:

Class Period / Examination Time

8:00 a.m. / 8:00 – 9:50 a.m.

9:00 a.m. / 9:00 – 10:50 a.m.

10:00 a.m. / 10:00 – 11:50 a.m.

11:00 a.m. / 11:00 – 12:50 a.m.

12:00 noon. / 12:00 – 1:50 p.m.

1:00 p.m. / 1:00 – 2:50 p.m.

2:00 p.m. / 2:00 – 3:50 p.m.

3:00 (or 3:30) p.m. / 3:00 – 4:50 p.m.

4:00 / 4:00 – 5:50 p.m.

All evening classes with weekly meeting on Tuesdays after 5:00 p.m.: examination time is regularly scheduled class meeting time

Wednesday, May 15, 2019: All day classes with initial weekly meeting of Monday at an odd hour:

Class Period / Examination Time

9:00 - 9:50 a.m. / 9:00 – 10:50 a.m.

11:00 - 11:50 a.m. / 11:00 – 12:50 a.m.

1:00 - 1:50 p.m. / 1:00 – 2:50 p.m.

3:00 - 3:50 p.m. / 3:00 – 4:50 p.m.

All evening classes with weekly meeting on Wednesday after 5:00 p.m.: examination time is regularly scheduled class meeting time

Thursday, May 16, 2019 will be used for rescheduling examination days cancelled due to weather or other occurrences.



COMP 2312 Software Development

Spring 2019 Syllabus

Course Information

Organization	South Central College
Course Number	COMP 2312
Section Number	01
Credits	4
Start Date	01/14/2019
End Date	05/09/2019
Meeting Times	Mondays and Thursdays, 5:30-7:30 p.m.
Meeting Location	C169

Description

Software Development covers common programming techniques used in writing applications as well as demonstrating how to use the current leading Integrated Development Environment. Topics include object-oriented programming, control statements, database programming, and producing web-based applications. The capstone project for this course involves creating an application for a real-life business problem. (Prerequisite: Successful completion of COMP 1130 Programming Fundamentals with a C or higher, or instructor permission if the student has a working knowledge of at least one programming language.)

Types of Instruction

Instruction Type	Credits/Hours
Lecture	4/64

Prerequisites

Successful completion of COMP 1130 Programming Fundamentals with a C or higher, or a working knowledge of at least one programming language.

Textbooks/ Class Materials

Required Online Textbooks

Author: Joyce Farrell
Title: *Microsoft Visual C# 2017, Seventh Edition*
Publisher: Cengage

Books are available for a semester long subscription to Cengage.com.

<http://nmankato.southcentralbookstore.com/TextBookDetail.aspx?BookPriceID=1692896&MBSNumber=2142127&SecID=2691002&trm=Spring%2019>

Learner Supplies

Flash drive or free cloud storage for your own backup purposes. Please have a backup routine in place and backup your files on a regular basis.

Netiquette

Netiquette is a very important concept when learning in the online environment and in this course I have a high expectation of these concepts.

When you are communicating in the course, whether it is in the discussion area or email, I expect you to follow the basic rules of netiquette.

- Think about how your recipient might react to your message
- Do not curse or USE ALL CAPITAL LETTERS
- All communications must be in complete sentences, no chat language or acronyms
- When in doubt, save your message overnight and reread it in the morning
- Include a clear and specific subject line.
- Check spelling and grammar.
- Read your own message before sending it

Classroom Etiquette

The purpose of this information is to assist students in understanding proper classroom behavior. The classroom should be a learning centered environment in which faculty and students are unhindered by disruptive behavior. Students are expected to maintain proper decorum in the classroom.

When in my classroom I expect you to follow the basic rules of classroom etiquette and behavior.

- Take Responsibility for your education
- Attend Class

- Get to class on time
- Do not have private conversations
- Turn cell phones off
- Respect your instructor
- Your classmates deserve your respect and support
- Come to class prepared
- Turn your work in on time
- Do not bring children to class
- When having academic difficulty seek assistance
 - * *ask a classmate about notes for the missed class, or*
 - * *contact me with questions, or*
 - * *check with the Academic Support Center (ASC) on either campus or with me how to meet with a tutor.*

South Central College Student Policies

Click on the link below to view student policies, including such items as disability rights, student conduct, academic integrity, and privacy statements.

<http://www.southcentral.edu/Student-Academic-Policies/academic-dishonesty-policy.html>

Institutional Core Competencies

Communication - Students will be able to demonstrate appropriate and effective interactions with others to achieve their personal, academic, and professional objectives.

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Install and use an Integrated Development Environment (IDE).

Learning Objectives

Install IDE on your system.

Create and run a simple program using C#.

Describe why programming style is important in a team environment.

2. Use OOP (Object Oriented Programming) and UML (Unified Modeling Language) concepts to design a program.

Learning Objectives

Describe the concepts of OOP, including inheritance, polymorphism,

encapsulation.

Draw a UML diagram to document a class.

Compare the differences between a flowchart and a UML diagram.

Utilize an algorithm and pseudocode to design programs.

3. Utilize various data types and operations in a program.

Learning Objectives

Write programs that utilize the different data types.

Use constants as part of your program design.

Convert String data into numbers.

Convert numeric data into Strings.

Demonstrate the different ways a number can be represented using binary, decimal, and hexadecimal.

4. Utilize methods for code reuse and code organization.

Learning Objectives

Utilize methods for greater code reuse.

Use parameters to send data to methods.

Write methods which return data.

Capture and use the data returned by a method using the assignment operator.

5. Use the built-in String methods.

Learning Objectives

Determine the length of a String.

Add multiple Strings together using the concatenation.

Utilize common String methods, for example, extraction, search, alphabetization.

6. Make programming decisions using the if, switch, and ternary constructs.

Learning Objectives

Make a yes/no decision using the if statement.

Use the ternary statement to make a decision.

Compare a value against multiple options with the switch statement.

7. Do repetitive tasks using the for, while, and do...while loops.

Learning Objectives

Repeat a set of statements a specific number of times using the for loop.

Loop indefinitely using the while and do...while loop statements.

8. Use built-in data structures to organize program data.

Learning Objectives

Utilize arrays, stacks, queues, linked lists, and sorting algorithms.

Describe the performance implications of various data structures.

Choose the right data structure.

9. Write your own custom classes.

Learning Objectives

Describe a Class and object using real-world examples.

Draw a UML diagram to show the contents of a Class.
Write a constructor that will initialize a Class into an object.
Demonstrate method overloading in a program.

10. Incorporate error handling for user-friendly programs.

Learning Objectives

Describe the types of errors that are encountered in programming.
Demonstrate effective debugging techniques using IDE debug tools.
Use structured error processing using the try, catch, and finally statements.

11. Explain general software development.

Learning Objectives

Describe Application Life Cycle Management, including software testing.
Read and translate application specifications into prototypes, code, and components.

12. Utilize databases.

Learning Objectives

Read and write data to a disk file.
Connect to a database.
Display data.

13. Use SQL (Structured Query Language) to communicate with databases.

Learning Objectives

Use the SELECT statement to extract specific information from a database.
Use the JOIN to extract information from several tables.
Use the UPDATE statement to update a database.
Write and use a stored procedure to run protected queries in a database program.
Delete a database table using SQL.

14. Create a web application.

Learning Objectives

Demonstrate the ASP.NET MVC (Model-View-Controller) Web Application Development.
Create an illustration showing the relationship between the client and server.
Create a dynamic web page using C#.
Publish the web page out to a live server on the Web.

Instructor Contact Information

Instructor Name Brenda Hanel

Email brenda.hanel@southcentral.edu

Office Hours Room C169, Mon. and Wed. 7:30-8:00 p.m. or by request

Appointment Scheduling

If you have a question, I encourage you to email me at brenda.hanel@southcentral.edu to set up a meeting. If you require a meeting, we will discuss if we should meet face-to-face or online. Once we determine how we will meet I will give you more details and we will set up a date and time.

Student Contribution

Each new module will open every Monday. There are 16 modules total, one new module per week. You will be expected to do much of your work outside of class. Plan accordingly to keep up with the new material and content as it's available.

The class meets twice per week on Monday and Thursday in C169 from 5:30 p.m. to 7:30 p.m. You are required to attend and participate. If you have not attended for an extended period and have not contacted me, I will remove you from the course roster and post a failing grade for you in the grade book.

Each student is expected to spend at least 8 hours per week preparing for class. It is expected that you will login to the class every day during the week and perhaps once or twice during the weekend to check for updates or news on the Course Home page. Since we will be meeting in the classroom for only 4 hours per week, the only way you will learn and keep up with new assignments is to check in frequently. I'll also post assignment clarification there with any questions that are relevant to the whole group.

You are required to work through all the study materials before the class meetings on the following week to be able to participate in the learning process actively. The course study materials are posted in the **Content** section on D2L Brightspace site at <https://southcentral.learn.minnstate.edu/>, in the respective modules.

Most modules have a graded assignment (for example, a lab, a discussion post, a programming assignment) to be submitted before a specific, obligatory deadline. Please refer to each module on D2L for this class for the details.

Instructor Contribution

As the instructor for this course, you can expect the following from me.

- The course syllabus will be provided online for you to reference throughout the semester that clearly states the course policies and grading scale.
- Grading of assignments will be done in a timely fashion.
- Responses to questions will be answered within 48 hours or sooner.
- Assignment expectations will be clearly stated, including what the assignment requires and how it will be graded.
- Assignments will not be graded until the due date expires. This means that I will not pre-grade any assignments to give you feedback before the assignment is submitted.

Grading Policy

Because there are many course and module objectives in this course, I will assess your performance on several different measures. All assignments will be assigned point values and due dates.

Programming assignments and any group projects will be graded using an instructor-created rubric that can be viewed on the particular assignment's web page.

The quizzes will be auto-graded.

The final quiz will be auto-graded.

Assignments' points breakdown:

- Programming assignments: 60 points each (4 assignments total, $4 * 60$ points = 240 points)
- Quizzes: 10 points each (10 assignments total, $10 * 10$ points = 100 points)
- Group Project: 60 points
- Final Quiz: 60 points

Total points possible for the course is 460.

The total points you have earned in the class will be used to determine your percentage and will be calculated to a grade using the grading table below.

To calculate your grade, you will take the total points you have earned and divide it by the total points possible to determine a percentage. You will then use this percentage to determine your final grade in the table below.

A	=	93 – 100		C	=	73 – 76
A-	=	90 – 92		C-	=	70 – 72
B+	=	87 – 89		D+	=	67 – 69
B	=	83 – 86		D	=	63 – 66
B-	=	80 – 82		D-	=	60 – 62
C+	=	77 – 79		F	=	59 or below

All values represent percentages (%)

Late Work Policy

All graded assignments have a due date. For the programming assignments only, there is a 1-week window after the due date for late work. However, 10% will be subtracted from the total points you earn.

The assigned work will only be accepted beyond that window due to unusual circumstances, with prior arrangements having been made with the instructor.

Course Schedule

Week	Mon	Topic	Thu	Topic
1	Jan 14	Topic: <i>First Program Using C#</i>	Jan 17	Topic: <i>First Program Using C# continued...</i> Assignment: Quiz 1
2	Jan 21	Martin Luther King Jr. Day. No class.	Jan 24	Topic: <i>Using Data</i> Assignment: Quiz 2
3	Jan 28	Topic: <i>Making Decisions</i>	Jan 31	Topic: <i>Making Decisions continued...</i> Assignment: Progr. project 1
4	Feb 4	Topic: <i>Looping</i>	Feb 7	Topic: <i>Looping continued...</i> Assignment: Quiz 3
5	Feb 11	Topic: <i>Using Arrays</i>	Feb 14	Topic: <i>Using Arrays continued...</i> Assignment: Quiz 4
6	Feb 18	Presidents' Day. No class.	Feb 21	Topic: <i>Using Methods</i> Assignment: Progr. project 2
7	Feb 25	Topic: <i>Advanced Method Concepts</i>	Feb 28	Topic: <i>Advanced Method Concepts continued...</i> Assignment: Quiz 5
	Mar 4	Spring break. No class.	Mar 7	Spring break. No class.
8	Mar 11	Topic: <i>Using Classes & Objects</i>	Mar 14	Topic: <i>Using Classes & Objects continued...</i> Assignment: Quiz 6
9	Mar 18	Topic: <i>Intro to Inheritance</i>	Mar 21	Topic: <i>Intro to Inheritance continued...</i> Assignment: Progr. project 3
10	Mar 25	Topic: <i>Exception Handling</i>	Mar 28	Topic: <i>Exception Handling continued...</i> Assignment: Quiz 7
11	April 1	Topic: <i>Handling Events</i>	April 4	Topic: <i>Handling Events continued...</i> Assignment: Quiz 8

12	April 8	Topic: <i>MVC Web Applications</i>	April 11	Topic: <i>MVC Web Applications continued...</i> Assignment: Group Project
13	April 15	Topic: <i>MVC Web Applications continued...</i>	April 18	Topic: <i>MVC Web Applications continued...</i> Assignment: Quiz 8
14	April 22	Topic: <i>SQL Databases</i>	April 25	Topic: <i>SQL Databases continued...</i> Assignment: Quiz 9
15	April 29	Topic: <i>SQL Databases continued...</i>	May 2	Topic: <i>SQL Databases continued...</i> Assignment: Progr. project 4
16	May 6	Topic: <i>Last week, catch up</i>	May 9	Topic: <i>Last week, catch up continued...</i> Assignment: Quiz 10
Finals		Final Quiz		

You should spend an average of **eight** hours (2 h/credit) a week studying for this course outside of the class.

Course activities and assignments listed in this syllabus are subject to change under certain circumstances such as by agreement or to enhance student learning.

South Central College Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, the Academic Support Center to request and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-5847. Additional information and forms can be found at www.southcentral.edu/disability.

This material can be made available in alternative formats by contacting the Academic Support Center at 507-389-7222