

**COP, 4365:**

**Software System Development In C#**

COP 4365, 001, 3 Credit Hours

Engineering, Computer Science and Engineering

**COURSE SYLLABUS**

Last Updated: 8/16/2023

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| --- | --- | --- | --- |
| *Instructor:* | Dr. Henrick Jeanty | *E-Mail:* | Hjeanty@usf.edu |
| *Office:* | ENG 017 |  |  |
| *TA/GA:* |  | *E-Mail:* |  |
| *Term:* | Fall 2023 | *Dates:* | 8/21/23– 12/7/23 |
| *Delivery Method:* | In Person.  Tue. Thu. 12:30 pm – 1:45 pm | *Location:* | ENB 118 |
| *Minimum  Technical Skills & Requirements:* | *You will need to be able to demonstrate proficiency at basic computer skills, maintain reliable internet access, and meet the computer system requirements listed here:*  <http://www.usf.edu/innovative-education/resources/student-services/technical-requirements.aspx>  All programming work and projects will be done in Windows 10 operating system. | | |
| *Virtual Office Hours:* | Technology Used: Blackboard Collaborate Ultra, Microsoft Team, Microsoft Visual Studio 2022 | | |

# Welcome!

Welcome to Software System Development. In this course you will learn to develop high quality software using the Object-Oriented Programming approach. You will learn to analyze, design and develop software systems using an object-oriented methodology with object oriented programming in C# and advanced software development tools (such as integrated development environments).

# University Course Description

Analysis, design, and development of software systems using objective methodology with object oriented programming and advanced software development tools (such as integrated development environments).

# Course Prerequisites

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| --- |
| * [**COP 4530**](https://www.systemacademics.usf.edu/course-inventory/?output=detail&subj=CDA&num=3103)  Data Structures |
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# Course Purpose

This course is about learning how to analyze, design and develop high quality software by using the Object-Oriented Programming approach and state of the art tools such as Integrated Development Environments.

# Instructor Contact Information and Communication

My name is Dr. Henrick Jeanty. Please address me as such.

You can use email and reach me at [Hjeanty@usf.edu](mailto:Hjeanty@usf.edu). Please use email for questions that do not relate to course material. Course material questions are better addressed in class.

I will hold office hours from 8:30 am – 9:30 am Monday to Thursday.

# First Week Attendance Policy

There will be some basic first week assignment that will count as first week attendance.

You might be asked to introduce yourself on the discussion board, sign a contract asserting that you have read and understood the it. Students who don’t complete the first week activity by the due date run the risk of being dropped from the course.

# How to Succeed in this Course

Successful students in this class complete all readings BEFORE coming to class. Our in-class time is designed to further and deepen the knowledge, concepts, and skills from the readings – not just repeat the information. Additionally, you will want to sharpen your study skills, as this course involves learning and memorizing a lot of information. Here are two important resources for you to look at:

1. This one-page handout details what the study skills behaviors of top students look like: <http://bit.ly/successfulstudentbehaviors>
2. This 18-page PDF provides 101 individual tips for effective study skills and note-taking: <http://bit.ly/studyskillstips>

Another resource you have is your instructor. I have office hours specifically to help you when you encounter some difficulty. Please take advantage of office hours.

Also, do not hesitate to ask questions. There are no stupid questions. By asking questions you help yourself greatly as well as your classmates who might still be too shy to ask.

# Course Structure

The course will be taught in person, in class.

**How is the learning process structured and carried out?**

Learning will consist of solving a practical problem in class with the instructor. Students will be expected to participate in solving the problem. Reading assignments will be provided and will be accompanied, when useful, by links to videos explaining the main aspects of the reading assignments. Class time will be used to explain how covered topics relate to the problem being solved. Class time will also be used to answer questions students might have. We will essentially be using a Flipped Class model. This will increase student engagement and responsibility in their own learning.

**Learning assessment** will be done via cumulative projects. Each project will build upon the previous ones until a final application is produced. The projects will introduce you to the main topics of the course.

**Attendance:** **MANDATORY!!** Three unexplained or unaccepted absences will result in a failing grade.

Late Assignments: Late assignments will incur a penalty unless previously discussed with the instructor.

Academic Integrity: Plagiarism or cheating in any form will result in severe academic penalties and potential disciplinary action.

Note: Topics and schedule may be subject to change based on the progress of the class. Students will be notified in advance of any significant changes.

**Let me know if you need further adjustments!**

We will be using knowledge gathered about all these topics to learn how to analyze, design and develop software.

As you can see, there are a few topics. You need to master each in order to achieve the goal of writing high quality software. It is therefore important that you understand all material presented in the course. Again, if you have a question or don’t quite understand something, please ask questions fand I will clarify or present the material in a different form. You may simply need a different explanation of the subject matter.

# Student Learning Outcomes

As a result of successfully completing this course, you will be able to:

| **Student Learning Outcome #** | **Description** |
| --- | --- |
| 1 | Understand the architecture and philosophy behind the .NET ecosystem. |
| 2 | Demonstrate proficiency in using basic programming constructs in C# such as variables, data types, operators, conditional statements, and loops. |
| 3 | Design and implement classes, objects, and methods in C#, and understand the principles of inheritance, encapsulation, and polymorphism. |
| 4 | Utilize C# collection types effectively to store, retrieve, and manage data. |
| 5 | Implement file input and output operations, understanding the differences between text and binary file operations. |
| 6 | Understand the concept and significance of delegates in C#, and effectively use multicast delegates. |
| 7 | Design and implement event-driven programming in C#, understanding the publisher-subscriber model and its significance. |
| 8 | Utilize lambda expressions for concise function definitions and explore basic querying capabilities using LINQ. |

# Required Course Materials

The required course material is the use of Visual Studio Community 2022.

Tools: You will need to download Microsoft Visual Studio 2022 Community Edition which is free from <https://visualstudio.microsoft.com/downloads/>

# Supplementary (Optional) Texts and Materials

Any extra material will be provided in the form of links to Internet resources. We will also use the W3School Website at [C# Tutorial (C Sharp) (w3schools.com)](https://www.w3schools.com/cs/index.php)

# Grading Scale

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| --- | --- | --- |
| Grading Scale (%) | |  |
| 97-100 | A+ |  |
| 94-97 | A |  |
| 90 – 93 | A- |  |
| 87 – 89 | B+ |  |
| 84 – 86 | B |  |
| 80 – 83 | B- |  |
| 77 – 79 | C+ |  |
| 74 – 76 | C |  |
| 70 – 73 | C- |  |
| 67 – 69 | D+ |  |
| 64 – 66 | D |  |
| 60 – 63 | D- |  |
| 0 – 59 | F |  |

# Grade Categories and Weights

|  |  |
| --- | --- |
| Assessment | Percent of Final Grade |
| Attendance: | 25% |
| Project #1 | 25% |
| Project #2 | 25% |
| Project #3 | 25% |
|  |  |

# Essay and Project Assignments

There are project assignments.

# Instructor Feedback Policy & Grade Dissemination

Assignments, Exams and Grades will be provided through Canvas. Due dates will be made available when the assignments are posted on Canvas. Your submissions will be in the form of electronic uploads of approved file types such as .doc, .docx, .PDF, .cs, .zip/

You will see your grades through Canvas. Depending on the size of the class you should expect to see your grade and feedback within two weeks of the posted deadline.

You can access your scores at any time using “Grades” in Canvas.

# Course Schedule (Tentative)\*

The course schedule is tentative and is subject to revision without notice. The speed at which we cover different topics will depend on the questions asked by the students. I would rather spend the time to get students to understand the material then rushing through thee material.

| **Week#** | **Section Title** | **Short Description** |
| --- | --- | --- |
| 1 | Introduction to .NET and C# | An exploration of the .NET ecosystem and the basics of the C# programming language. |
| 2 | Basic Programming Constructs in C# (Part 1) | Understanding variables, data types, and basic operators in C#. |
| 3 | Basic Programming Constructs in C# (Part 2) | Delving deeper into conditional statements, loops, and control flow. |
| 4 | Object-Oriented Programming Basics (Part 1) | Introduction to classes, objects, and methods. |
| 5 | Object-Oriented Programming Basics (Part 2) | Advanced class properties, constructors, and introduction to inheritance in C#. |
| 6 | Collections in C# (Part 1) | Understanding arrays and lists in depth, working with data. |
| 7 | Collections in C# (Part 2) | Introduction to dictionaries, sets, and other collection types. |
| 8 | File I/O in C# (Part 1) | Basics of file handling, reading from text and binary files. |
| 9 | File I/O in C# (Part 2) | Writing to files, and understanding serialization basics. |
| 10 | Delegates in C# (Part 1) | Introduction to delegate types and their significance in C#. |
| 11 | Delegates in C# (Part 2) | Exploring multicast delegates and practical use cases. |
| 12 | Events in C# (Part 1) | Understanding and defining events, exploring the publisher-subscriber model. |
| 13 | Events in C# (Part 2) | Dive deeper into event handling, custom event arguments, and best practices. |
| 14 | Lambda Expressions and LINQ Basics | Introducing lambda syntax, basic querying with LINQ, and its applications. |

# USF Standard University Policies

Policies about disability access, religious observances, academic grievances, academic integrity and misconduct, academic continuity, food insecurity, and sexual harassment are governed by a central set of policies that apply to all classes at USF. These may be accessed at: <https://www.usf.edu/provost/faculty/core-syllabus-policy-statements.aspx>

# Course Policies: Grades (as applicable)

**Late Work Policy**:

There are no make-ups for in-class writing, quizzes, exams or projects.

**Extra Credit Policy**:

If extra credit is granted on an exam, the additional points are added to the "First Midterm" portion of the semester grade. You cannot earn higher than 100% on the "First Midterm" portion of the grade; any points over 100% are not counted.

**Grades of "Incomplete"**:

For USF Tampa undergraduate courses and USFSM undergraduate and graduate courses: An “I” grade may be awarded to a student only when a small portion of the student’s work is incomplete and only when the student is otherwise earning a passing grade. The time limit for removing the “I” is to be set by the instructor of the course. For undergraduate students, this time limit may not exceed two academic semesters, whether or not the student is in residence, and/or graduation, whichever comes first. For graduate students, this time limit may not exceed one academic semester. “I” grades not removed by the end of the time limit will be changed to “IF” or “IU,” whichever is appropriate.

**Make-up Exams Policy**:

If a student cannot be present for an examination for a valid reason (validity to be determined by the instructor), a make-up exam will be given only if the student has notified the instructor in advance that s/he cannot be present for the exam. Make-up exams are given at the convenience of the instructor usually on Fridays at 10 am.

**Exam Retention Policy**:

After exams are graded, the instructor will review the examination with the class and collect all exams.

**Final Examinations Policy**: All final exams are to be scheduled in accordance with the University’s final examination policy.

**Grades of "Incomplete"**: Offer specifics about your policy on incomplete grades.

The current university policy concerning incomplete grades will be followed in this course.

For USF Tampa undergraduate courses and USFSM undergraduate and graduate courses: An “I” grade may be awarded to a student only when a small portion of the student’s work is incomplete and only when the student is otherwise earning a passing grade. The time limit for removing the “I” is to be set by the instructor of the course. For undergraduate students, this time limit may not exceed two academic semesters, whether or not the student is in residence, and/or graduation, whichever comes first. For graduate students, this time limit may not exceed one academic semester. “I” grades not removed by the end of the time limit will be changed to “IF” or “IU,” whichever is appropriate.

**Make-up Exams Policy**:

*If a student cannot be present for an examination for a valid reason (validity to be determined by the instructor), a make-up exam will be given only if the student has notified the instructor in advance that s/he cannot be present for the exam. Make-up exams are given at the convenience of the instructor.*

**Exam Retention Policy**: Describe how long you will keep graded work.

*The exams will be retained for one semester following the current one, and then they will be destroyed.*

**Group Work Policy**:

We will be using pair programming a software development technique in which two programmers work together at one workstation or computer or laptop. The grade obtained will be shared by both students working in pair.

**Final Examinations Policy**: *All final exams are to be scheduled in accordance with the University’s final examination policy.*

# Course Policies: Technology and Media (as applicable)

# Course Policies: Student Expectations

**Course Hero Policy:**

*The* [*USF Policy on Academic Integrity*](http://regulationspolicies.usf.edu/regulations/pdfs/regulation-usf3.027.pdf) *specifies that students may not use websites that enable cheating, such as by uploading or downloading material for this purpose. This does apply specifically to CourseHero.com – any use of this website (including uploading materials) constitutes a violation of the academic integrity policy.*

**End of Semester Student Evaluations:** Explain the evaluations and context.

All classes at USF make use of an online system for students to provide feedback to the University regarding the course. These surveys will be made available at the end of the semester, and the University will notify you by email when the response window opens. Your participation is highly encouraged and valued.

**Netiquette Guidelines:**

1. Act professionally in the way you communicate. Treat your instructors and peers with respect, the same way you would do in a face-to-face environment. Respect other people’s ideas and be constructive when explaining your views about points you may not agree with.
2. Be sensitive. Be respectful and sensitive when sharing your ideas and opinions. There will be people in your class with different linguistic backgrounds, political and religious beliefs or other general differences.
3. Proofread and check spelling. Doing this before sending an email or posting a thread on a discussion board will allow you to make sure your message is clear and thoughtful. Avoid the use of all capital letters, it can be perceived as if you are shouting, and it is more difficult to read.
4. Keep your communications focused and stay on topic. Complete your ideas before changing the subject. By keeping the message on focus you allow the readers to easily get your idea or answers they are looking for.
5. Be clear with your message. Avoid using humor or sarcasm. Since people can’t see your expressions or hear your tone of voice, meaning can be misinterpreted.

**Email and Discussion Board Guidelines:**

1. Use the subject line effectively by using a meaningful line of what your email or discussion is about.
2. Keep your emails and postings related to the course content. You should not post anything personal on a discussion board, unless is requested by the instructor.
3. Any personal, course or confidential issues should be directly communicated to the instructor via email. The discussion boards are public spaces; therefore, any issues should not be posted there.

# Course Technology & Student Support

**Academic Accommodations:**

Students with disabilities are responsible for registering with Students with Disabilities Services (SDS) in order to receive academic accommodations. For additional information about academic accommodations and resources, you can visit the SDS website at <http://www.usf.edu/student-affairs/student-disabilities-services/> .

**Academic Support Services:**

The USF Office of Student Success coordinates and promotes university-wide efforts to enhance undergraduate and graduate student success. For a comprehensive list of academic support services available to all USF students, please visit the Office of Student Success website at- [http://www.usf.edu/student-success/](http://www.usf.edu/student-success/undergrads/)

**Canvas Technical Support:**

*If you have technical difficulties in canvas, you can find access to the canvas guides and video resources in the “Canvas Help” page on the homepage of your canvas course. You can also contact the help desk by calling 813-974-1222 in Tampa or emailing* [*help@usf.edu*](mailto:help@usf.edu)*.*

# Important Dates to Remember

All the dates and assignments are tentative and can be changed at the discretion of the professor. <http://www.usf.edu/registrar/calendars/>

You can find important dates (Drop/Add Deadline, Grade Forgiveness Deadline, Withdrawal Deadline, Reading Days, Final Examination) at <https://www.usf.edu/registrar/calendars/#fall2020>