Course Outline Spring 2021
CSCI165 Computer Science II
Monday 8:30 am – 10:10 am IN PERSON LAB (Room 209)
Wednesday 8:30 am– 10:10 am REMOTE LECTURE MICROSOFT TEAMS
Tompkins Cortland Community College
170 North Street
Dryden, NY 13053-0139

Instructor Name: Ken Whitener, *Professor of Computer Science*

Office: Virtual (Discord)**,** CS Lab **(**Room 209) or Faculty Suite 241(Office)

Telephone: 607.844.8211 x4230 (not a reliable method of contact)

Email: **hkw@tompkinscortland.edu**

Turn around: Please allow **at least 24 hours** for communication turn around. Plan accordingly and do not wait until the last minute to ask questions.

Discord: This is my preferred method of communication as it is much quicker than email and allows for nice synchronous communication between myself and you. We can voice chat, share screens, share files and generally be immediately productive. If you are not familiar with Discord, it is a voice, video and text platform. It is built for and by gamers so expect a little bit of in-joking from the platform. You can install it here **https://discord.com/** and then use the following invite code to join the TC3 CS Server. This is where I would like to direct all extra help inquiries. There is a group of great upper-level CS students on the server who enjoy helping out. This is a safe and fun space. ***There is a phone app and a desktop version. The desktop version provides the best experience.***

Discord Invite: **https://discord.gg/brrZRna**

Office Hours:
Monday	10:30 AM - 1:00 PM REMOTE
Tuesday	12:30 PM - 1:30 PM REMOTE
Wednesday	10:30 AM - 1:00 PM CAMPUS
Thursday	12:30 PM - 1:30 PM CAMPUS
Friday	10:00 AM - 12:00 PM REMOTE

Catalog Description: This computer science course covers problem solving, algorithm and Object-Oriented design using the Java language and VS Code development environment. Applications will be from a variety of areas. This is **not a beginner's course** and is intended for those who have had at least a semester of programming. This course transfers to **most** four-year colleges. No previous knowledge of Java is required but programming experience in some language is expected. Prerequisite: CSCI160, MATH 120 or 3 years of regents high school math. 3 credits (2 lecture/2 lab hours per week).

Prerequisites: CSCI160/CIS 108, MATH 120 or three years of NYS Regents math

Credits: 3

Texts & Additional Materials:
- This course has no official textbook. All reading and research materials will be provided during the semester. Students will be expected to research and implement official Java documentation provided at: **https://www.oracle.com/technetwork/java/api-141528.html**
- Access to a computer with the following software installed:
  - **Java:** JDK 13 (or latest version) **https://www.oracle.com/technetwork/java/javase/downloads/index.html#JDK13**
  - **Git:**
    - Windows users will need Git Bash. All demonstrations and configurations presented in class will be via BASH Shell. Windows users are expected to be able to translate these to their operating system.
    - Git Bash provides a "bash like" experience for the Windows user. This can be installed via **Git for Windows: https://gitforwindows.org/**
    - If you are a Linux or Mac user, your terminal is ready. Just need to install git.
  - **Source Code Editor:** An industry strength source code editor like: VS Code, Sublime Text or Atom. VS Code will be used in class. Assistance will not be provided to students using Notepad. If you choose to use a tool other than the one demonstrated in class you are responsible for the configuration. ***You are expected to use a debugger.***
  - Expect to download and install various programming libraries as the semester progress. We will be writing **unit tests** using the JUnit framework.
- **Required:** I have a Discord server with channels for each of my classes. The students who have participated in this have expressed appreciation for the communication platform. You can use this area to talk, voice chat, share resources, memes, music, DnD stories . . . whatever. This is the best/quickest way to contact me outside of class and the most productive, informative way to interact with your classmates outside of class.

Course Objectives/Competencies: Upon successful completion of this course students should be able to understand and/or apply the following:
- Design, write, test, and debug large object-oriented programs comprised of multiple classes
- Understand and apply basic concepts of object-oriented programming and design (Encapsulation, Composition, Inheritance and Polymorphism)
- Understand and apply basic version control using Git from the command line
- Write, execute and interpret unit tests using JUnit
- Follow defined standards and conventions for good programming practice.
- Complete laboratory assignments in a closed lab setting which will include working in small groups doing pair programming

Course Modalities:
The COVID pandemic has introduced many challenges to our lives and productivity. Education has been greatly affected, but in my eyes has given us an opportunity to evolve to meet these challenges. With that being said, here is the format of this class.

- *I have combined both online and in-person sections of this course into one single section. All fully online students will be doing the same assignments on the same schedule.*

- **Blackboard:** Blackboard will be used for the online gradebook, calendar and discussion forum. It will be our basic hub for all course related activities. You will find links to all the tools we will be using. All online and in-person students have been combined into a single Blackboard shell. You can go here to check due dates, participate in discussion with myself and your classmates and to keep tabs on your grade.

- **Microsoft Teams:** All online and in-person students have been merged into a single Microsoft Team. All lectures will be captured and uploaded to Blackboard for convenient viewing. *The lecture happens each Wednesday from 8:30 am – 10:10 am*. All students have the option to attend the lectures. To virtually attend a lecture, you will logon to Microsoft Teams at lecture time and you will be in class. I will have Teams open and will be able to communicate with all students who are attending remotely. You can post questions just as if you were in class. If you are an online student and cannot make the remote lectures, they will be captured and posted in the Blackboard for your access. You can view the lectures when your schedule permits. *You are expected to view the lectures whether in real time or at a later date.*

- **Discord:** The TC3 CS Discord Server is our help community. It is where you can communicate with your peers, with myself and with other CS students who have been in your shoes. You can ask questions here any time, although I will not be online 24/7. This has been a great way for students to interact and get and receive help. It is also where I hold my remote office hours and do advising. There will be a dedicated channel for this course where everyone can communicate, and I will also respond to direct messages. We can text chat, voice/video chat, share screens and even do *live coding* where we can collaborate on the same source code file. Your participation on this server is not required except for a single assignment where you will create an account (or use an existing account) and join the server and say hello.

- **Lectures:** Will be held every Wednesday from 8:30 am – 10:10 am. All of these meetings will be remote via Microsoft Teams. *Students enrolled in the in-person section (M01) are expected to attend all lectures*. Students in the online section (BL1) may choose to attend but their attendance is not required.

- **Lab:** Will be held every Monday from 8:30 am – 10:10. Join these on campus in Room 209 or log in to Microsoft Teams. *Students enrolled in the in-person section (M01) are expected to attend all labs*. Students in the online section (BL1) may choose to attend but their attendance is not required. Both sections will share the same due dates. Labs will be assigned on Mondays and due Friday night by midnight.

- **Git** will be used to disseminate all reading materials and source code. You will also be submitting all of your work via Git. Getting this setup and configured will be one of our first lab assignments. This will be an important soft introduction into an industry strength SVC (Source version control) application.

Backup Plan:
In the case of the College going fully remote (or in the case an individual class session must be remote), we will use our Teams site for class sessions. We will discuss this on the first day of class, and we will practice using this site during the semester. Blackboard has a link to our Teams site and information on how to download the Teams app. Please note that in some cases we may have very limited notice time in case of a switch. I will keep the Blackboard calendar up-to-date and use Blackboard Announcements in case of any switch

Be prepared for some individual face-to-face class sessions being forced to go remote.

> **One:** If I am unable to attend class, we will hold the class remotely *unless otherwise notified.*

> **Two:** If a positive Covid case is found on campus, the Health Department may have us shut down some rooms for up to 24 hours for cleaning. This would then require a switch to remote for some class sessions. If that happens, the College will notify me, and I will inform you. Just be aware that face-to-face classes could be cancelled or moved to remote *with little notice.* Please make sure you are ready to deal with this situation.

Back-Up Means of Communication if Video conferencing Fails: Sometimes mix-ups, power failures, and terrible internet service happens. If a Live-Online session is interrupted or if I am having trouble taking part in a Live-Online session, please check Discord for more information about next steps. If I am unable to get to Discord, then I will use Blackboard to post some information about finishing the class. Be sure to check your email often as I will route Blackboard announcements to your MyMail inbox.

We are all in this together. It is imperative that everyone understand our health guidelines and rules for our re-opening. Please visit the **Tompkins Cortland Community College COVID-19 Policies and Update** page on the website for more detailed information. Please wear your masks at all times (brief respites to take a drink are ok); maintain appropriate distance from each other; and please be patient when entering or leaving our classroom and allow time for people to leave without grouping up into a line.

Grading:

A	93-100	B -	80-82	D+	67-69
A -	90-92	C +	77-79	D	63-66
B +	87-89	C	73-76	D -	60-62
B	83-86	C -	70-72	F	0 - 5 9

Method of Evaluation:

Note: The quantity of lab assignments and homework assignments may vary due to the pace of the course

Gradable Item	Quantity	Points Each	Total Points
Homework Assignment/Discussion	10	10	100
Exams	2	100	200
Lab Assignment	12	30	360
		Total Points	**660**

Explanation of assessment items:

- **Homework /Discussion Assignments (10 points each):** These can range from discussions of a research topic or the assignment of small practice problems. Practice problems are designed to address individual topics from the course in a small context. They may even tie in to current lab assignments. Students are encouraged to help each other out and use this as a study group. Students are encouraged to share code, experiences, problem solving approaches and valuable sources they may have discovered. The global programming population is a community that thrives on sharing and helping newcomers develop. This online course is no different; but myself and my teaching assistants expect a certain level of due diligence. Each week you will be assigned 1 – 3 small homework problems that will demonstrate that you are following along with the current material. These are not expected to take more than 2 – 3 of hours of your time. They will be assessed as following.

    - **A (9 or 10 out of 10)** = Excellent or outstanding work, you did everything required and more; You lead the discussion with intelligent, thoughtful, well-written responses and encouraged others in their participation. You participated in the discussion from the beginning and did not wait until the day of to begin.
    - **B (8 out of 10)** = Very Good work, you completed all requirements with a few minor mistakes; Your discussion responses were thoughtful and complete. You participated in the discussion from the beginning and did not wait until the day of to begin.
    - **C (7 out of 10)** = Average work, you attempted to complete the assignment, and met most requirements; You attempted participation but had difficulty expressing your thoughts in a clear manner or you waited until the last minute to begin participation.
    - **D (6 out of 10)** = Below Average work, your work indicates a low level of understanding and needs much improvement; Your discussion participation did not contribute any original thoughts or suggestions, just "nice work", "me too" or "I agree" type responses, **or your discussion contributions were posted at the last minute**
    - **F (5 out of 10 or below)** = Failing, you are in trouble, and need to take appropriate steps to improve your level of understanding; **You didn't participate in the discussion at all, or your discussion contributions were late, or you did not respond to classmates accordingly**

- **Lab Assignments (30 Points):** Each Monday you will be given a large lab assignment. These assignments may contain research requirements outside of the regular class readings. Students **are expected** to be able to problem solve and research on their own. The reading materials will not hold your hand through the labs. You will be expected to demonstrate creative thinking and problem solving in the application of the topics. ***Students are expected to leverage debugging tools to assist them in problem solving***. These should take anywhere from 4 – 8 hours.

  All questions for the instructor or teaching assistants will expect to be prefaced with

  - Specific, problem-based issues. It is difficult to provide assistance to broad generalities. ***We need to see code and talk about specifics.***
  - Proof of previous problem-solving efforts. These could take the form of any of the following
    - Commented code attachments accompanied by detailed explanations of what you are attempting to accomplish.
    - Screen shots of error messages accompanied by detailed explanations of what you are attempting to accomplish.
    - Walk-throughs of electronic debugger sessions. If you are an online student, this could take the form of a screen capture video, a live screen sharing on Discord or a VS Code live coding session.
    - Links to articles, forums and technical documentation that you are trying to make sense of.

- **Lab Assignment Grades** Your lab assignments will be graded out of 30 points. To determine the spread for Midterm and Final projects, simply scale the numbers by ~3. In assessing your work, I will look at any/all of the following as appropriate:

  - **Program Logic and Structure (8 points)**
    - program demonstrates proper object-oriented programming techniques
    - program logic is efficient and uses loops when possible
  - **Correctness/Testing (15 points)**
    - program logic solves the stated problem
    - program results are displayed to the correct precision and output formatting
    - when required, unit tests are created or adhered to.
    - tests consider all cases and boundary conditions
    - all tests pass
  - **Style (5 points)**
    - variable names are appropriate and meaningful and follow establish structural conventions and are consistent
    - nested structures are properly indented
    - white space is used to improve readability
  - **Documentation (2 points)**
    - authorship is identified in code
    - program purpose is clearly stated in code
    - documentation included throughout the code as needed

- ▪ documentation follows established standards
- ▪ documentation uses proper spelling, grammar, punctuation, etc.

- **Exams:** You will have a midterm and a final exam to assess your progress in the course. These exams will be written and heavily conceptual. You will not get to hack your way through an exam by throwing code at a compiler to see what sticks. I expect you to be conversant with the concepts. I encourage students to form study groups and I will provide class time for review. ***I will not create an exam review for you, but I will answer any questions you may have about the concepts***.

Due Dates: All due dates will be provided on the **Blackboard calendar** and inside the **overview.txt** file for each module. Make sure you know where the Calendar is and how to read it. Misreading the calendar is not an appropriate excuse for late work and will not be accepted. Also do not fall into this fallacy of thinking: "The past two assignments were due on a Wednesday; therefore, ALL assignments are due on Wednesday." Stay on top of the due dates.

Submissions: All submissions and course material (except for midterm and final exams) will be fetched from a remote Git repository. There is a document explaining the software and the process and should be the very first document you read. We will be using Blackboard only for discussions/announcements and for the grade book. All files that I hand out to you will need to be fetched from the repository using the terminal. The exception to this will be the midterm and final exams. These will be posted in Blackboard and your work will be submitted via Blackboards also. This enables me to take advantage of Blackboards timing feature.

Expectations: In her book, "College Study Skills," author Dianna L. Van Blerkom indicates that students should generally keep a two-to-one study-to-class-time ratio. This means you should plan to study two hours for each one hour of class time. If you have high performance goals or a particularly difficult class, ***higher ratios of three- or four-to-one are suggested***. In its "Surviving College" student guide, the University of Michigan recommends a similar ratio, advising students to spend six to nine hours ***a week*** in out-of-class study for each ***three-credit course***.

Understand that this class meets <u>4 hours a week</u> and is particularly difficult.

Your results will be commensurate with your effort. If you put in minimal effort, you will receive minimal results. ***I have very high expectations of you; and I am ready to return that effort.*** This class transfers to 4 year schools and has rigid requirements.

Attendance:
- To maintain good grades regular attendance in class is necessary. Absence from class in no way excuses a student from class work. **I will not re-deliver lecture materials to students in office hours.** Code from class exercises will be posted each day. Lectures will be recorded and posted to Microsoft Teams each week.
- Participation in class and keeping up with assigned work is vital to succeed. I will consider you to have missed the equivalent of two weeks of classes if you have not done any of the following in a two-week period: contacted me, attended a class session, submitted work, taken part in any activity via Blackboard or Discord (logging in does not count). If you miss the equivalent of two weeks of class, you will be ***Administratively Withdrawn*** in accordance with College Policy. Please note those activities do not guarantee a successful grade, they only guarantee that you won't be administratively withdrawn. I want

to help. So please contact me as soon as you can (ahead of time if possible) if you know you may have extended periods of not being actively engaged in class or will miss class sessions. I will work with you as best I can, but you must keep in contact with me for me to help.

Make-Up Policy / Late Work:
- Late discussions, labs or programming assignments **will be graded with a 10% reduction in grade *per day late.*** Submitting an assignment past the due date/time is an automatic 10% reduction whether it is 5 minutes or 5 hours late. Plan accordingly.
- Make-up examinations will ONLY be allowed for those students who can provide:
  - Documented evidence of a death in the family;
  - A doctor's note indicating serious illness or hospitalization of you or a family member in your care;
  - Evidence of participation in a job interview or closely related employment pursuit; or
  - Evidence of involvement in a university-sponsored extracurricular trip and/or event.
  - **All assignments are expected to be submitted BEFORE the specified due date**. This policy will be strictly enforced as we will often work through solutions to homework assignments in class on the due date. You will not be allowed to submit work after sitting through the walk through. If there is a question about the assignment, I expect you to ask me in plenty of time for you to be able to go and finish your work by the due date.

General Notes:

Classroom Civility: Students are expected to arrive to class on time; to be prepared for class with completed assignments; to engage in class discussion and activities; to stay in class for the entire class session; and to be actively involved throughout the period. Students who fail to accomplish these basic expectations may be asked to leave class and be marked absent.

Students are expected to behave like well-mannered, compassionate, open-minded, thoughtful adults who show respect to others. Talking, whispering, texting, sleeping, leaving your seat, leaving the classroom, and interrupting/ignoring others are rude, immature, and unprofessional activities that hinder leaning and creative, critical thought. Students who are disrespectful, disruptive, or discourteous to others may be asked to leave class and be marked absent. Generally, eating, drinking, using unauthorized electronics, being tardy, and leaving class early are disruptive actions and not acceptable.

Netiquette: Classroom Civility applies in virtual class spaces as well. Typical standards of behavior that apply to on-campus behavior also apply online. These include dressing appropriately, not smoking/vaping, not consuming alcohol, and not engaging in illicit or illegal activity. The general rules of being engaged in class and being respectful apply to virtual spaces.

During remote sessions you are required to have your camera on at all times.

E-mail use
TC3 recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The College encourages all official student email correspondence be sent only to a student's TC3 email address and that faculty and staff

consider email from students official only if it originates from a TC3 student account. This allows the College to maintain a high degree of confidence in the identity of all individuals corresponding and the security of the transmitted information.

Academic Integrity:

Plagiarism and academic dishonesty are unfortunately very common in computer-related classes. It usually occurs as an act of desperation when the material is difficult, or time is tight but is nonetheless wrong and will not be tolerated in any form. My policy on academic honesty is as follows:

Any individual assignments that you submit to me in this class are a reflection of what you have learned as well as your own individual style and creativity. All individual assignments that you submit to me are expected to be your own, original work. You may not copy any work from your classmates, friends, instructors, texts, reference books, or online resources and submit it as your own. It is important that you also protect your work, and do not share any of it with your classmates. NEVER give anyone a copy of your assignment "just to look at" - it will likely be used improperly! Do not share storage devices with another student.

You are certainly encouraged to ask questions about the assignments in this course. You can ask advice on how to begin, share opinions on what process to follow to solve a specific problem, and even ask specific questions regarding troublesome aspects of the work you are completing. DO NOT, however, cut and paste large segments of an assignment for the class to see and help you with. If you need such help you may ask me. Again, the main point is to protect the work that you've created, and to allow everyone in the course an equal chance to learn the material by creating their own assignments.

Any assignments that I feel are not your original work may be checked against your classmates and other submissions from previous courses. If I determine that your submitted work has been plagiarized in any form, I will contact you immediately. On the first offense, you will receive a 0 for the assigned project, and the incident will be reported to the Dean of Students. If a second offense should happen, you will receive an F in the course, and the incident will be reported to the Dean of Students, who may choose to take further college action. Please note that all individuals involved will be sanctioned, those who give solutions as well as those who receive solutions to assignments. Remember, it is your responsibility to protect your work!

Please feel free to contact me regarding this or any other course policy if needed.

 College policies and procedures regarding academic integrity may be found in the college catalog: **http://www.tc3.edu/admissio/catalog.asp**

<u>**Stress Management & Emotional Wellness:**</u>

Stress is a common part of the college experience, and it can be intensified by unexpected life changes outside the classroom. As a student, you may experience a range of issues that can cause barriers to learning, such as significant stress, mood changes, excessive worry, problems with eating and/or sleeping, strained relationships, increased anxiety, alcohol and other drug use, feeling down, difficulty concentrating, and/or lack of motivation. These issues can deteriorate your emotional and physical health, leading to diminished academic performance.

Tompkins Cortland Community College provides mental health services to support the academic success of students. The Office of Mental Health Services (OMHS) Counseling Center offers free, confidential services to help you manage personal challenges that may threaten your well-being and academic success. To speak with a clinical counselor, contact the Counseling Center at 607.844.6577 or stop by Room 230.

Accommodations:
      This material is available in alternative formats upon request. It is the College's policy to provide, on an individual basis, reasonable accommodations to students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities are encouraged to contact Carolyn Boone, Coordinator of Access and Equity Services, at (607) 844-8222 X4283 or boonec@tc3.edu to discuss their particular needs for accommodations.

Tentative Course Schedule/Outline (Units of Instruction):

Week	Class Topic
1/27	Course Overview and policies Tools
2/1 – 2/7	Introduction to Java, program structure and execution environment Introduction to Git and work submission
2/8– 2/14	Expressions, variables and assignment statements String Class and program style Introduction to the Java API Console Input and Output the Scanner class
2/15 – 2/21	Flow control with If, repetition and switch structures Objects and References The String pool and string interning the equals method **Tuesday 2/16:** Last Day to Drop
2/22 – 2/28	Programming with Arrays Functional decomposition with static methods The ArrayList class **Tuesday 2/23:** Early Progress Reports **Thursday 2/25:** Mid-Winter Day (All College Retreat)–No Day or Evening Classes

3/1 – 3/7	Two dimensional Arrays
3/8 – 3/14	Introduction to Object oriented programming and Design Defining Classes Instantiation and Encapsulation: access modifiers Methods
3/15 – 3/21	Classes Continued Constructors and method overloading toString and equals
3/22 – 3/28	Object Oriented Design Patterns: Composition Classes Continued Feature ownership: the static keyword privacy leaks
3/29 - 4/4	Inheritance Derived classes and method overriding Automatic type promotion and type casting **MIDTERM EXAM** **Wednesday 3/31:** Last Day to Withdraw **FRIDAY 4/2:** Spring Day, College Holiday NO CLASS
4/5 – 4/11	Polymorphism Early/late method binding (dynamic dispatch)
4/12 – 4/18	Polymorphism Abstract Classes Interfaces and Design Patterns **Wednesday 4/14:** Registration Day -No Day or Evening Classes
4/19 – 4/25	Exception Handling Try/Catch Blocks and Exception classes Designing and throwing custom Exceptions
4/26 – 5/2	Final Project Overview Final Project Work
5/3 -5/9	Final Project Work

	Wednesday 5/5: Last Class Meeting. Last to withdraw (WP/WF)
5/10 – 5/14	**Final Exam Week**