UNIVERSITY AT ALBANY
State University of New York

College of Engineering and Applied Sciences
Department of Computer Science

ICSI 201/IECE141 -- Fall 2022 -- Introduction to Programming
Class Meeting Time: T, Th 9-10:20AM   Location: Campus Center Auditorium

INSTRUCTOR

Instructor's name	Mariya Zheleva
Instructor's title	Associate Professor
Office location	UAB 418
Office hours	T 1-2PM/Th 11AM-Noon via Zoom and by appointment[1]
E-mail address	mzheleva@albany.edu

LAB INSTRUCTORS

Instructor's name	Office location	Office hours	Email address	Labs
Vladimir Kuperman, CS	UAB 427	TH2-4PM in UAB 427	vkuperman@albany.edu	3857, 3858, 3859, 3860, 3861, 4375
Jonathan Muckell, ECE	ETEC-223	W4-6PM in ETEC-B007	jmuckell@albany.edu	9662

TEACHING ASSISTANTS / PEER EDUCATORS

TA's name	Office hours	Email address	Labs

REQUIRED TEXTBOOK
Text/Reference Book(s):
Title: ***Starting Out with Java: From Control Structures through Data Structures, 4th edition***
Authors: *Gaddis & Muganda*
Published by: *Pearson Education*
ISBN: *9780134787961*

Note: We highly recommend obtaining a paperback version of the textbook because (i) if you are majoring in Computer Science/Electrical and Computer Engineering, you will be using the same textbook for ICSI213; and (ii) you will be able to use the hardcopy of the textbook during exams, where applicable. Used textbook or 3rd edition of the textbook are acceptable.

EQUIPMENT AND SOFTWARE REQUIREMENTS

1. ***Requirement for a personal laptop.*** This is a programming-intensive course that will require you to complete coding assignments every week both at home and in the lab. As a result, you are expected to have access to a personal computer. A personal laptop with Windows or Mac OS would be necessary.
2. ***Requirement for zyBooks subscription***. To supplement your learning, we will be using a zyBooks Lab

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[1] Instructor office hours via Zoom at https://albany.zoom.us/j/95135062080?pwd=RGFPZTlXOXF0SWEzM1VTdzhqNGJpUT09

called "zyLab Autograder, with free sample labs in Java". You are required to purchase this resource. The cost per student is $19 (a discounted cost for our class from the original $30). Additional instructions on how to purchase your zyBooks subscription are forthcoming.

3. **Blackboard.**[2] Blackboard will be used as a course website and to disseminate announcements, maintain grades, provide course materials, the most current syllabus, and assignment documents. However, this is not an online course and class attendance, and participation is essential and required. **It is your responsibility to check Blackboard daily** to be aware of ongoing activities, approaching deadlines and most recent updates.

4. **Piazza.** We will use Piazza as an online forum platform for technical discussion pertaining to the class. This will be your first and main point of online contact with the course staff pertaining to any technical issues you may be experiencing. From questions on how to set up to discussion on assignments – all will be handled through Piazza.
   a. **Piazza sign-up link:** http://piazza.com/university_at_albany/fall2022/csi201
   b. **Piazza access code:** csi201

5. **Socrative.** Attendance and participation are essential to your student success. We will be using an online tool called Socrative for student engagement and attendance tracking. More information on how to access Socrative will be provided during class and lab sessions.

6. **Programming language and IDE.** We will be learning programming using the Java programming language. Additionally, we will be using an Integrated Development Environment (IDE for short) called Eclipse. Your first lab will walk you through getting set up with Eclipse and Java on your personal laptop. In addition to the textbook, you will be using relevant online resources. One of the most important is the Java API specification, available here: https://docs.oracle.com/javase/8/docs/api/index.html.

COURSE OVERVIEW AND DESCRIPTION

This course first introduces the elementary concepts of computer science such as CPU, memory, I/O devices, and binary number system. It then focuses on developing basic programming skills and understanding how programming can help solve real-world problems. The topics include input and output data, data types, control structures, loops, functions/methods, arrays, procedural and object-oriented programming concepts, and program debugging and compilation.

This course is designed to introduce the computer science discipline through practical hands-on programming experience. Thus, the course is programming intensive. Unlike other introductory courses that are broad, shallow or conceptual introduction to various aspects of a field, this course achieves its purpose by coupling discussion of fundamentals with weekly hands-on programming assignments. We will be using Java to understand and practice the basics of programming by writing, testing and debugging original code.

You will learn to perform basic mathematical operations in a computer program and utilize the data storage of your computer to store results. These skills will be developed while tackling practical applications. You will be required to use basic computer skills, such as navigating your file system, learning new computer applications, finding and understanding supporting material in the textbook and on the web, making and transferring archives, keeping

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[2] If you are unfamiliar with Blackboard, please read the Blackboard Help. If you have reviewed the help and still have questions or experiencing problems with Blackboard, please contact our ITS Help Desk. Please be aware that the Blackboard mobile app has limitations and may be confusing, so I recommend the web version. UAlbany ITS considers Firefox as a browser that works best with Blackboard (you can download it for free here). The Chrome browser works well most of the time, too.

backups and working ethically and on time. Where basic skills are lacking, course staff and other students will help in the learning process.

This is a hands-on cumulative skill practice course, which means that as the semester progresses, topics and activates covered will build on what you have learned in the earlier weeks. Students are highly advised to keep up with the weekly work, as otherwise, knowledge and skill deficiencies will create learning challenges later in the semester. To succeed in this task, students should participate actively in class and labs and take advantage of all resources (office hours and forum) to understand the material and complete assignments. The course plan gives incentives for regular engagement with the subject's intellectual work within and outside of the classroom, designed to make your participation consistent and fun.

PREREQUISITES COREQUISITES: While there are no course prerequisites, students are expected to have general mathematical knowledge and computer skills (including working understanding of applications, data files and operating systems).

LEARNING OBJECTIVES

- To begin to understand what computer science is
  - You will be able to recognize scientific and practical ideas that are precisely formulated, often with math and logic, which fit observations and measurements and can be the content of computer science.
- To gain an appreciation of computer science.
  - You will be prepared to study advanced computer science courses that will enable you to either (i) work with or (ii) become one of those experts who invent or construct software and scientific ideas about computing.
- To learn and practice good writing, testing, and debugging code techniques.
  - You will be able to demonstrate fluency and problem-solving skills in computer programming. In other words, given a sufficiently detailed description of what a computer should do and a strategy for doing it, you will write a program that makes the computer do it by implementing the given strategy.
- To understand, be able to read and write Object-Oriented programs using the Java programming language to achieve specific tasks.
  - You will be able to develop the confidence and creativity to construct novel solutions to problems.

STUDENT LEARNING OUTCOMES (SLOs)

At the completion of this course the students will:
- Given requirements and specifications, be able to design and develop basic- and mid-level computer programs using multiple tools.

- Understand and use programming fundamentals such as variables, expressions and assignments, primitive data types, class data types, and data conversion.

- Given a programming problem, be able to identify and use library classes such as `String, Random, NumberFormat, DecimalFormat, Math`, wrapper classes, etc.

- Given a programming problem, be able to choose the right conditional statements such as `if, if-else, if-else-if`, and `switch` statement; and the right loop statements such as `while, do-while`, and `for` statement.

- Understand and be able to use in their programming solutions basic data structures such as array and array list.

- Create their own Java classes with constructors, accessors, mutators, and other methods.

- Understand the advantages and implementation of Object-Oriented concepts such as information hiding, encapsulation, inheritance, and polymorphism.

- Understand the mechanisms of file input/output and exception handling.

- Communicate programming solutions in a written and oral format effectively.

The topics that will be covered in this course are provided at the end of the syllabus.

ASSESSMENT AND POLICIES

The accomplishment of course objectives will be assessed by applying the studied concepts and tools in individual assignments. *I do not accept late assignments.* All assignments are due by 11:59PM on the due date (unless otherwise specified). *Any re-grading requests will be considered up to 5 business days after posting the grades for the corresponding assignment.* No re-grading after the 5-day period has passed.

Projects: Students are required to work on 3 class project that will each form 10% of their final (30% total). The project descriptions will be posted on Blackboard.

Exams: This class will include two in-class exams. Exam 1 is on October 13th and Exam 2 is on December 13th. These exams account for 40% of the overall grade (20% each). They will cover all textbook material discussed in class. Exam 1 will be based on material from the beginning of the semester up to the midterm point, whereas Exam 2 will cover the remaining material (i.e. Exam 2 will not be cumulative).

Labs. You will work on 10 lab assignments, which together will count towards 10% of your grade.
- *Lab instructors.* We are fortunate to have two excellent professors take the role of lab instructors. To ensure we have enough hands-on-deck to answer questions, one TA will be assigned per lab in addition to the lab instructors. You can reach out to any of the TA or lab instructor as you work through an assignment.
- *Lab format.* Labs are designed to train your programming skills and will be tightly coupled with the material covered in class. Each lab will train skills from the material covered in class during the previous week. For example, if the lectures in Week 4 covered loops, the labs in Week 5 will train you in programming with loops. Lab assignments will be posted on Friday, the week before. Students will be able to work on their assignment during the lab section (55 minutes; check your schedule for the applicable section). Students will be required to submit a lab report and code via Blackboard.
- *How to prepare for labs.* A 55-minute lab section is not enough for you to familiarize yourself with the assignment and be productive. Thus, you are required to read the lab assignment (and ideally get a head-start with the tasks) before you enter the lab section. This way, you will be able to make the best use of your instructor's time to ask questions and resolve any issues you may have.
- *Pair programming.* We will practice pair programming during labs. This means that you will work with a

lab buddy. Pair programming is designed to help you learn to work in a team (an essential skill for the industry) while having a shared programming experience. Two ways you can help each other are by studying the lab assignment together ahead of time and working together during the lab section.

- *Lab deliverables.* For each completed lab, you will be submitting a report via Blackboard. Instructions on what to submit will be given with each lab.
- *Lab due dates.* Each lab report is due at 11:59PM on Sunday the week in which a lab has been covered. Following our example above, if loops were covered in lab sections during Week 5, your report on loops will be due on the Sunday of Week 5 at 11:59PM. **Late reports will not be accepted.**
- *Lab attendance.* Your lab attendance is mandatory and will be tracked using Socrative Exit Tickets. Missing more than 20% (i.e. more than one lab) of the labs leading up to an exam will bar you from taking the exam.

Weekly Quizzes. You will be solving weekly quizzes posted on Blackboard, which will constitute 5% of your grade. We will drop the two weakest scores towards your final score. While these quizzes do not constitute a large fraction of your grade, they are designed to prepare you for the Exams. Missing quizzes will likely result in lower grades on your exam.

Weekly zyLab activities. Like the weekly quizzes, the zyLab activities will ask you to perform a small programming task to reinforce a concept discussed in class during the week. To this end, you are required to purchase access to "zyLab Autograder, with free sample labs in Java". ZyLab assignments will count as 5% towards your final grade. We will drop the lowest two scores in calculating your final grade. ZyLabs will help in two ways: (i) you will be better prepared to tackle the lab assignments of the following week and (ii) you will be more comfortable in tackling the programming projects. While the zyLab activities do not constitute a large portion of your grade, consistently missing them will impact your performance in lab and on the projects.

Class participation: Students must read the assigned materials ahead of class and participate in the in-class discussions using Socrative. Your participation credit will constitute 10% of your final grade and will be formed by the following components.

- *Lab attendance.* Attending labs is mandatory. You will receive one point towards the total lab attendance credit for each lab you attend. Additionally, you must have attended 80% of the labs leading up to an exam, in order to be admitted to the exam. If your lab attendance is insufficient, you will receive 0 points on the exam. Note that submitting a lab report but not attending the lab will not gain you the lab attendance point.
- *Lecture attendance.* Attending lectures is also mandatory. If you miss a few lectures, you will quickly fall behind our fast pace of material, you will struggle to complete your labs and ultimately, will struggle to keep up with the later material. We will take lecture attendance at randomly selected lectures using Socrative Exit Ticket. Each attended lecture will count for one point towards your participation credit.
- *Participation in Piazza.* Technical questions pertaining to the course material and assignments will be handled via Piazza. You are encouraged to answer questions that other students have posted. Each upvoted answer by a TA or instructor will gain one participation point. We will upvote an answer if it is clear and holistically answers the posed question.

Grading. A final grade will be determined as a weighted average of these scores using the following weights:

Grading item		Weight
Projects	Project 1	10
	Project 2	10
	Project 3	10
Exams	Exam 1 (October 13th, 2022, in class)	20
	Exam 2 (in finals week December 13th, 2022, 8-10am)	20
Labs		10
Quizzes		5
zyLab assignments		5
Attendance and Participation = Lab (5%) + Class (3%) + Piazza (2%)		10

Students must complete all requirements in order to pass the course. A grade of incomplete will be given only when circumstances beyond the student's control cause a substantial amount of course work to be unfinished by the end of the semester. Whenever possible, the student is expected to make extra efforts to prevent this situation from occurring. The instructor will be the sole judge of whether an incomplete is warranted. Final grades are computed based on the above formulas and are NOT negotiable. Per department policy, "…students may not submit additional work or be re-examined for the purpose of improving their grades once the course has been completed and final grades assigned."

Policy on I grade: A grade of *I* will only be given for genuine extenuating circumstances that are beyond your control *after the midterm point*. Both of the following conditions must be met:
1. Your work must be in good standing as of the passing of the midterm point (i.e. October 13th, 2022); that is, you must have an average score of at least 50% on projects, labs, quizzes and zyLab assignments. Furthermore, your grade from Exam 1 must also be equivalent to at least a C. Therefore, if you miss Exam 1 or have not turned in other work, you are not eligible for an *I* grade.
2. Written documentation must be supplied about the extenuating circumstance either by you or the University administration.

Under no circumstances will the condition for completing an *I* grade be that the entire course be retaken later without a new registration.

Policy on Make-up Exams: Make-up exams will be given only for valid and verifiable excruciating circumstances (e.g. a major medical situation with medical proof). If you are going to miss an exam, you must contact your instructor *ahead of time*, provide medical proof of your circumstances and arrange to take a make-up exam at an alternate date/time.

Policy on make-up credit assignments. No make-up credit assignments will be given.

Policy on attendance and class participation: I expect you to attend every class and lab. If you miss a couple of classes/labs, this will affect your grade. I also expect active participation in in-class discussion; if you attend class but do not participate, you will not receive the full class participation credit. To prepare for these discussions, you must read the assigned reading before coming to class. I will use a tool called Socrative to facilitate class discussion, get feedback on your learning and track attendance. If you miss a class, it is your responsibility to find out the material covered in the class. It will not be possible for your instructor to conduct makeup classes.

Policy on email and communication. Your communication with course personnel is essential for your success in this class, so please, be proactive.
- *Email.* The TA appointed to your section is **the first point of contact** for any questions. Please, start the

email subject with "ICSI201/IECE141 F22:" and cc the lab instructor. If a problem cannot be solved by the TA and lab instructors, or you need to contact the class instructor directly, you may do so by cc-ing the TA and lab instructor assigned to your section. You can use email to reach the TAs or instructors with questions that cannot be handled via the discussion forums on Piazza (e.g. discussing grades, or anything pertaining to personal circumstances). Avoid using email for technical questions, as this will slow down the process of responding to your queries. For technical issues with assignments or other class-related activities, first post to the corresponding Piazza forum. Emails sent to the instructors will be answered within 48. Emails sent to the TAs will be answered within 24 hours.

- *Technical questions outside of class, lab and office hours.* Technical questions will be exclusively handled via Piazza. Emails with technical questions will be deprioritized and may not be answered or answered with delays.

COVID-19 guidance: All students, faculty members, staff, and visitors are required to adhere to all university policies and the expectations outlined on the University's COVID-19 website: https://www.albany.edu/covid-19.

Responsible Computing: Students are required to read the University at Albany Policy for the Responsible Use of Information Technology (https://www.albany.edu/its/its_policies.htm). Students will be expected to apply the policies discussed in this document to all computing and electronic communications in the course.

Students with disabilities: Reasonable accommodations will be provided for students with documented physical, sensory, systemic, cognitive, learning and psychiatric disabilities. If you believe you have a disability requiring accommodation in this class, please notify the Disability Access and Inclusion Student Services Center. That office will provide the course instructor with verification of your disability and will recommend appropriate accommodations. For further information refer to the University's Disclosure Statement regarding Reasonable Accommodation found at the bottom of the document at the following website: https://www.albany.edu/disability/statement-reasonable-accommodations-students.

Academic Honesty and Overall Regulations: Every student has the responsibility to become familiar with the standards of academic integrity at the University. Faculty members must specify in their syllabi information about academic integrity and may refer students to this policy for more information. Nonetheless, student claims of ignorance, unintentional error, or personal or academic pressures cannot be excuses for violation of academic integrity. Students are responsible for familiarizing themselves with the standards and behaving accordingly, and UAlbany faculty are responsible for teaching, modeling and upholding them. Anything less undermines the worth and value of our intellectual work, and the reputation and credibility of the University at Albany degree. Plagiarism and other acts of academic dishonesty will be punished. Read the Standards of Academic Integrity and policies in the University Bulletin (https://www.albany.edu/undergraduate_bulletin/regulations.html).

CAUTION AND A STRONG WORD OF WARNING!!!! Plagiarism and other acts of academic dishonesty will be punished. Students are expected to submit original work. While you may discuss a problem with another student, the work you submit must be your own. Any student who submits copied work or any student that provides work for copying will earn a zero grade for that assignment. If there is more than one copying incident, the student will be graded an E for the class. As per college policy, cheating activity, including cheating in exams, quizzes, projects, etc., WILL be written up in a Violation of Academic Integrity Report (VAIR) reported to the college administration, which includes the Computer Science Chair, the College of Engineering and Applied Sciences Dean, and the Vice Provost of Undergraduate Studies. This will become a part of your permanent record. Multiple incidents will result in being expelled from the college.

- *Cheating on exams* will result in an E grade for the course. Further, the students involved will be referred to the Dean's office for disciplinary action.
- *Cheating on assignments.* Homework exercises and programming assignments *are meant to be individual exercises* (unless otherwise stated); you must do these by yourself. Cheating in a quiz, zyLab, lab report or programming assignment will result in a ZERO for that assignment *for all the students involved*. Students who cheat in two or more homework/programming assignments will receive an E grade for the course. The names of such students will also be forwarded to the Dean's office for disciplinary action.

TENTATIVE LIST of TOPICS TO BE COVERED
Below is a tentative schedule of topics for the semester. Note that this schedule may change as the semester progresses. The final schedule and specific assignments will be provided on our course website. Students are expected to have read the listed material before class.

Week	Date	Lecture topic	Reading	Lab topic	Projects
W1	23-Aug	Course overview. Intro to programming.	Ch 1.	Lab0: Get set for programming	
	25-Aug	Intro to programming.	Ch 1.		
W2	30-Aug	Basics of Java programming.	Ch 2.	lab 1: Intro to programming	
	1-Sep	Basics of Java programming.	Ch 2.		
W3	6-Sep	Decision structures.	Ch 3.	Lab 2: Java fundamentals	
	8-Sep	Decision structures.	Ch 3.		
W4	13-Sep	Loops and files	Ch 4.	Lab 3: Decision structures	
	15-Sep	Loops and files	Ch 4.		Project 1 assigned
W5	20-Sep	Methods	Ch 5.		
	22-Sep	Methods	Ch 5.	Lab 4: Loops	
W6	27-Sep	Introduction to objects and classes	Ch 6.		
	29-Sep	Introduction to objects and classes	Ch 6.	Lab 5: Methods	Project 1 due.
W7	4-Oct	Java Arrays	Ch 7.		
	6-Oct	Java Arrays. Midterm review	Ch 7.	Review	Project 2 assigned
W8	11-Oct	No class. Fall break.			
	13-Oct	**Midterm exam**	Ch 1-7.	No lab	
W9	18-Oct	ArrayList.	Ch 7.	Lab 6: Objects and classes	
	20-Oct	A deeper look into objects	Ch 8.		
W10	25-Oct	A deeper look into classes	Ch 8.		
	27-Oct	Text processing	Ch 9.	Lab 7: Arrays	Project 2 due
W11	1-Nov	Wrapper classes	Ch 9.		
	3-Nov	Object relationships	Ch 8.7.	Lab 8: Files	Project 3 assigned
W12	8-Nov	Inheritance	Ch 10.		
	10-Nov	Inheritance contd.	Ch 10.	Lab 9: Aggregation	
W13	15-Nov	Polymorphism	Ch 10.		
	17-Nov	Interfaces	Ch 10.	Discussion	
W14	22-Nov	Exceptions in Java	Ch 11.		
	24-Nov	No class. Happy Thanksgiving!		Lab 10: Inheritance	Project 3 due
W15	29-Nov	Exceptions in Java	Ch 11.		
	1-Dec	Final review	Ch 7.13, 8-11	Review	
Finals week	**13-Dec**	**Final exam, Tuesday 12/13 8-10am in our lecture hall.**			