INTRO TO COMPUTING II

Course Description and Goals

This course covers elements of advanced programming, including abstract data types, algorithms that manipulate ADTs and analysis of algorithms. Information hiding, data abstraction, and modular design are emphasized. They are exemplified by important ADTs – stacks, queues, lists, and binary trees – and algorithms – searching and sorting. Object-oriented programming, in Java, is used throughout the course.

In assignments students design and implement programs that illustrate the topics of the course. By the end of the course, students should be able to design and implement the interfaces and code of multi-module programs.

Prerequisite: COSC 101 or equivalent

This course does not require knowledge of Python, the programming language used in COSC 101. It does, however, assume knowledge of programming fundamentals in an imperative programming language, including the following concepts.

- Primitive and reference variables (including lists or arrays and strings).
- Looping (definite and indefinite).
- Conditionals.
- Functions and pass-by-value semantics for arguments.

Organization

Meeting times

Section	Instructor	Room	Time
COSC 102 A	Fourquet E.	MCGREG 329	MWF 09:20 10:10
COSC 102 B	Fourquet E.	MCGREG 329	MWF 12:20 01:20
COSC 102 LA	Fourquet E.	MCGREG 315	W 01:30 03:30
COSC 102 LB	Lyboult M.	MCGREG 315	T 01:30 03:30
COSC 102 LC	Lyboult M.	MCGREG 315	R 09:20 11:20

Instructors

Instructor	Email	Phone	Office	Office Hours
Fourquet E.	efourquet	x 6033	MCGREG 309	M 2:30–4:00 T 1:30–2:30 F 10:15–11:15 1:30–2:30
Lyboult M.	mlyboult	x 7564	MCGREG 318	M 12:30–2:30 W 10:00–12:00 F (MCGREG 328) 10:00–12:00

Open Lab

COSC tutors are available in McGregory 314 and 328 during open lab hours. Lab tutors provide hands-on help with coursework most weeknights and Sunday.

Materials

Required Textbook *Data Structures and Abstractions with Java 4/E*
by Frank M. Carrano & Timothy M. Henry. Print copies are available at the bookstore.

Optional Text *Introduction to Programming Using Java (version 7)* by David Eck.
Free online textbook about Java programming.

Websites Students are responsible for keeping up-to-date with content of the followings websites.

Course Webpage http://cs.colgate.edu/~efourquet/cosc102/index.html
for course general information: lecture topics and readings, labs and assignments release.

Moodle http://moodle.colgate.edu
for homework submissions and possible course section announcements, discussion and extra materials.

Software

All programming is done using Java. Classroom and lab computers have Java 7 and DrJava installed. Links under the Resources section on course webpage provide instructions for installation on personal computers. Either Java 6 or 7 is fine.

Live Coding CodingBat Java

CodingBat is a free website with live coding problems to build coding skill. The coding problems give immediate feedback, providing an opportunity to practice and solidify understanding of the concepts. By doing CodingBat problems students put reading concepts into practice.

Course Work

This course and its associated lab count for a total of 1.25 credits. Therefore, students are expected to spend an average of roughly 12.5 hours/week on this course.

Lab To complete this course, students must also sign up for a 2-hour weekly laboratory section. Labs are designed to be completed during the lab period. *The lab is a separate course with a separate grade.* Students should come to the lab prepared by having done the required readings and practice exercises.

Attendance Students are expected to come to class. Students are responsible for any material covered in class and in lab.

Readings/Exercises Readings and exercises are posted on the course webpage. Students are required to complete them prior to the class for which they are assigned. Lectures and discussions do not duplicate assigned material. Anything from the required readings, even if not directly discussed in class, is fair game for the homework, exams and reading quizzes.

Participation As learning cannot be passive, students' active, informed and civil participation in class and on Moodle is essential. Participation counts toward the course grade.

In class students are expected to comment, to ask and answer questions about readings and lecture content and to collaborate with their peers on problem solving exercises. Students are expected to show a level of involvement that enhances everyone's learning.

Moodle's forum is used for class discussions outside of class. Students are encouraged to post general questions on the Moodle's forum instead of emailing the instructor. Asking questions, replying or giving hints to classmates (including sharing links to documentation and tutorials) on Moodle's forum benefit the entire class. Collaboration through Moodle is encouraged and doing so positively affects participation grade.

Assignments There are weekly homework assignments, typically handed out on Monday and due the following Monday night. Each assignment takes the concepts introduced in class and practiced in lab and pushes students to apply them to more challenging context.

Exams There will be four exams: three exams during the term and one final, in addition to the reading quizzes. All exams are to completed individually; absolutely no collaboration is allowed. *Exam dates will be posted on the course website.* Notify the instructor at least *one week prior to the exam* about scheduling conflicts.

Grading

The final grade for the class is calculated on the following weighting. Grading is on an absolute scale (i.e., no curve). Note that the lab grade is separate and will be provided in the lab syllabus.

Coursework	Percent
Reading quizzes	6
Exams (3×8)	24
Final exam	18
Assignments	48
Participation	4

Final course grades are determined as follows. As a general rule, fractions are rounded down (e.g., an 89.9 is a B+, not an A-). A grade of A+ is awarded only when a student demonstrates truly exceptional performance and is not simply determined by having a high final course grade.

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

Policies

Academic honesty and collaboration You are expected to abide by Colgate's Code of Student Conduct and by Colgate's Academic Honor Code.

Collaboration (i.e., discussing the problem and possible solutions) while working on assignments is fine, but the work you submit must be your own. Roughly speaking, it is okay to share ideas but it is not okay to share any artifacts (code, write-up, etc.). Here is a good way to think about it: you and a classmate can get together, discuss ideas, and even write some code. However, you are expected to leave that meeting with *nothing* – no notes and certainly no code – and write up *your own solution*. If someone helped you or you collaborated with peer(s) state it clearly with any submitted work: write down their names in the main header file or better in a `readme` file. *Failing to acknowledge your collaborators can be considered a violation of the honor code.*

Late homework or missing work Late assignments are not generally accepted. Start assignments early and submit early and often. Missed work may receive a zero. Conflicts with in-class exams should be addressed well in advance.

Unexpected circumstances If unexpected circumstances arise that might compromise your performance in the course (inability to attend class, complete the homework on time, etc.), please let me know as soon as possible so that we may arrange appropriate accommodations. Usually these accommodations will be made in consultation with your administrative dean.

Getting Help

A key to your success at Colgate, and in life, is figuring out what resources are available and using them to help you achieve your goals. For any homework problems or other class-related questions that you have, there are several options for getting help. Please take advantage of these opportunities!

1. See instructor during office hours.
2. Post a question on the Moodle forum.
3. Form a study group with other students in the class and work together on a regular basis (note the collaboration policy above).
4. See CS student tutors during Open Lab hours.
5. Send us email.

In addition, please be aware of the great resources that Colgate provides.

Academic Support and Disabilities Services If you feel you may need an accommodation based on the impact of a disability, you should contact your instructor privately to discuss your specific needs. If you have not already done so, please contact Lynn Waldman, Director of Academic Support and Disability Services at 315-228-7375 in the Center for Learning, Teaching, and Research. Ms. Waldman is responsible for determining reasonable and appropriate accommodations for students with disabilities on a case-by-case basis, and more generally, for ensuring that members of the community with disabilities have access to Colgate's programs and services. She also assists students in identifying and managing the factors that may interfere with learning and in developing strategies to enhance learning.

Counseling Center College life can sometimes get bumpy; if you are experiencing emotional or personal difficulties, the Counseling Center offers completely confidential and highly professional services.

SOURCe Student Operated User Resource Center offers peer support and expertise related to computers and technology. Located in Case-Geyer the team assists with problems concerning email, internet, and public access computers on campus.

Readings for next class

Readings for **this week lab** and **next class** are online!