

CSC/CYEN 132: The Science of Computing III

Living *with* Cyber (part 3 of 3)

Course Description: Additional coverage of algorithm analysis and development, object-oriented programming, data structures, computer architecture, and problem solving; applications of computing. This is the third Living *with* Cyber course.

Course Outcomes: Upon **successful completion** of this course, students should:

1. Be able to identify a problem's variables, constraints, and objectives;
2. Understand more advanced data structures and their applications (e.g., dictionaries, lists, sets);
3. Be able to write object-oriented programs in a general-purpose programming language (e.g., Python);
4. Understand more advanced concepts of the object-oriented paradigm (e.g., polymorphism, coupling, and cohesion);
5. Have a basic understanding of signed and floating point number, and character representation in computers;
6. Have a basic understanding of how a computer is made (e.g., ALU, CPU, memory, I/O);
7. Have exposure to various applications of computing (e.g., problem solving with computers, software engineering, artificial intelligence); and
8. Work in groups on a significant computing project with a presentation.

Prerequisite(s): A grade of **C** or better in CSC 131 or CYEN 131.

Textbook: The Living *with* Cyber text (in PDF format) is available for free online at www.livingwithcyber.com.

Grades: Your grade for this class will be determined by dividing your total earned points by the total points possible. In general, graded components will fall into the following categories:

Attendance:	~2.5%
Puzzles:	~2.5%
Raspberry Pi activities/project:	~30%
Programs:	~15%
Major tests:	~50%

The Raspberry Pi kit that will be used throughout the Living *with* Cyber curriculum in the 2017-18 academic year will be provided to participating students at no cost. **Students who drop the Living *with* Cyber curriculum before finishing it must return the kit. Students not majoring or minoring in Computer Science, or majoring Cyber Engineering, will be loaned the kit and must return it at the completion of the Living *with* Cyber curriculum.** Please see www.livingwithcyber.com for more information about device requirements.

Students needing testing or classroom accommodations based on a disability are encouraged to discuss those needs with me as soon as possible. For more information, please visit www.latech.edu/ods.

If you are ill, you can get treatment at the Wellness Center in the Lambright Intramural Center building. The nurses there can treat minor illnesses and can give vouchers to see doctors in town for more serious illnesses. Since you have already paid for this service through your fees, there is usually no additional charge. Also, if you sign a HIPPA release form at the time of your visit, they can verify that you were ill and thus you will have an excused absence for missing class.

In accordance with the Academic Honor Code, students pledge the following: "Being a student of higher standards, I pledge to embody the principles of academic integrity." For the Academic Honor Code, please visit <http://www.latech.edu/documents/honor-code.pdf>.

All Louisiana Tech students are strongly encouraged to enroll and update their contact information in the Emergency Notification System. It takes just a few seconds to ensure you're able to receive important text and voice alerts in the event of a campus emergency. For more information on the Emergency Notification System, please visit <http://ert.latech.edu>.

TOPICS COVERED:

- More on Data Structures
- More on Objects
- Building a Computer
- Application (Beam): Problem Solving with Computers
- Application (Beam): Software Engineering
- Algorithms...Reloaded
- Application (Beam): Artificial Intelligence