

# CSC/CYEN 131: The Science of Computing II

## Living *with* Cyber (part 2 of 3)

Course Description: Intermediate algorithm analysis and development, object-oriented programming, high-level data structures, computer architecture, and problem solving. This is the second *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. Be able to write object- and non-object-oriented programs in a general-purpose programming language (e.g., Python);
3. Be able to transform numbers from base two to bases ten and sixteen – and vice versa;
4. Understand binary addition and multiplication;
5. Have exposure to some applications of computing (e.g., graphical user interfaces);
6. Have a basic understanding of randomness, probability, and pseudo-random number generators;
7. Have a basic understanding of recursion and breaking problems down; and
8. Have a basic understanding of high level data structures (e.g., linked lists, stacks, queues, binary trees).

Prerequisite(s): A grade of **C** or better in CSC 130 or CYEN 130.

Textbook: The *Living with Cyber* text (in PDF format) is available for free online at [www.livingwithcyber.com](http://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:	~27.5%
Programs:	~17.5%
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](http://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](http://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 Python
- The Object-Oriented (OO) Paradigm
- Number Systems and Binary Arithmetic
- Application (Beam): Graphical User Interfaces
- Chaos
- Recursion
- High Level Data Structures