

# CSC/CYEN 130: The Science of Computing I

## Living *with* Cyber (part 1 of 3)

Course Description: An introduction to computing, algorithm analysis and development, computer programming, data structures, computer architecture, and problem solving. This is the first 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 represent algorithms in various ways (e.g., flowcharts, pseudocode);
3. Have a basic understanding of algorithms (e.g., searching and sorting) and their complexity;
4. Be able to write simple programs in a general purpose programming language (e.g., Python);
5. Have a basic understanding of introductory data structures (e.g., arrays);
6. Have a basic understanding of the functional components of a computer (e.g., CPU, memory);
7. Understand logical operations (e.g., AND, OR, and NOT) on binary inputs and their translation to digital gates; and
8. Have an understanding of computing as it applies in and how it affects the global context.

Prerequisite(s): A grade of **C** or better in MATH 101 or equivalent.

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:              | ~5%    |
| Puzzles:                 | ~2.5%  |
| Raspberry Pi activities: | ~22.5% |
| Programs:                | ~17.5% |
| Other assignments:       | ~2.5%  |
| 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:

- Origin
- Lecture 0
- Introduction to Living *with* Cyber
- Introduction to Algorithms
- Introduction to Computer Programming
- Introduction to Computer Architecture
- Searching and Sorting
- Introduction to Data Structures