Computer Science 105
Introduction to Computer Science
Spring 2022

Instructor: Dr. Chris Healy
My office is located in Room 200-I in Riley Hall. My office hours are MWF 11:30 – 1:20 or
by appointment. Office telephone number 294-2233 and e-mail address
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Class meetings: MWF 10:30 – 11:20 in Room 106 in Riley Hall. Labs are held Mondays in
Room 201 in Riley Hall.

Purpose: This course is about how to think, and how to do so in a way that is logical,
organized and precise. Computer science is the systematic study of how people solve
problems. In this introductory course, we will see some types of problems that computer
scientists tackle and the approaches taken to solve them. Along the way, we will also see
how information is represented and manipulated by a computer, and what happens when a
program is "running."

Textbook: *The Code Book*, by Simon Singh, published by Anchor Books, 2000. We will
cover almost the entire book.

Course Web site: http://cs.furman.edu/~chealy/cs105

Grade calculation:
        10% Labs
        10% Homework
        10% Quizzes
        20% Test #1 Friday, February 11
        20% Test #2 Friday, March 25
        30% Final   Saturday, April 30, 8:30 – 11:00 a.m.

Please note the dates and times of these exams. Any appropriate documentation
supporting special arrangements necessary for any test must be given to me during the first
week of class.

If you miss a test or quiz, then you will earn a score of zero, unless your absence is
excused. The registrar's office announces the academic calendar a year in advance.
Therefore, travel plans are not an acceptable excuse for missing a test or quiz. If you know
in advance that you cannot take one, please let me know as soon as possible, so that you
can take it early. Otherwise, if you are absent from a test or quiz due to an excused
absence, then your final exam grade will substitute for its score.

Labs: This class features a lot of hands-on experience on the computer. Keeping up with
the lab work is essential because most lab activities build on previous ones. Please keep
your work organized so that you can quickly refer to work you have done previously. You
must attend the entire lab period, unless you finish early. To earn full credit for a lab, all
checkpoints need to be completed correctly. You are responsible for completing all lab
work, but you may receive help from the instructor, the lab aide, or anyone else in the

class. In case you are not finished with the lab at the end of the lab period, you have 6 calendar days after the lab period in order to show me your work in order to earn credit.

Preparation: You will need to study about 5 hours per week for this class. Study includes reviewing notes, becoming acquainted with the material to be discussed in the next class, finishing labs as necessary, and preparing for exams. Studying on a consistent schedule each day will work far better for you than cramming before a test. Please see me if you need help or advice in this course. I am here for you.

Tentative class schedule (doesn't show Monday labs):
Pages refer to Pascal tutorial. Chapters refer to *The Code Book*.

M 1/10	pp. 1-3: computer tasks	M 2/28	Caesar, transposition, substitution
W 1/12	pp. 4-10: binary numbers	W 3/2	tba
F 1/14	pp. 11-15: problem solving	F 3/4	tba
W 1/19	pp. 16-21: variables, constants	M 3/14	Ch. 2: Great cipher, homophonic
F 1/21	pp. 22-25: statements, types	W 3/16	cryptanalysis of Vigenère
M 1/24	pp. 26-31: I/O, errors, practice	F 3/18	book, Ch. 3: improving Vigenère
W 1/26	pp. 32-37: if statement, relational ops	M 3/21	one-time pad
F 1/28	pp. 38-43: if-then-else, practice	W 3/23	JN-25 and Enigma
M 1/31	pp. 44-49: while loop, primes	F 3/25	Test #2
W 2/2	pp. 50-55: error checking, for loop	M 3/28	Ch. 4: Turing; Ch. 5: Navajo
F 2/4	pp. 56-59: nested loop, practice	W 3/30	Linear-B, XOR cipher
M 2/7	pp. 60-64: strings	F 4/1	tba
W 2/9	pp. 65-66: string practice	M 4/4	Ch. 6: Diffie-Hellman, RSA
F 2/11	Test #1	W 4/6	Ch. 7: Hashing, digital signatures
M 2/14	pp. 67-73: arrays	F 4/8	logic gates
W 2/16	pp. 74-76: array practice	M 4/11	CPU & memory system
F 2/18	pp. 77-82: file I/O, procedures	W 4/13	machine instructions
M 2/21	pp. 83-87: procedures, functions	W 4/20	machine instructions, continued
W 2/23	pp. 88-94: parameters, practice	F 4/22	presentations
F 2/25	Ch. 1: steganography, cryptography	M 4/25	presentations