CISC 106: General Computer Science for Engineers

Course Description:
Principles of computer science illustrated and applied through programming in a general-purpose language. Programming projects illustrate computational problems, styles, and issues that arise in computation.

Prerequisites: MATH 117 or MATH 115 (pre-calculus)

Instructor: Debra Yarrington,
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Class Times: 106 -11 MWF 1:25 – 2:15
106-12 TR 12:30 – 1:45
106-13 TR 3:30 – 4:45

Lab Times: 030L M 2:30 – 3:20
031L M 3:35 – 4:25
040L T 9:05 – 9:55
041L T 10:10 – 11:00
050L T 11:15 – 12:05
051L T 12:20 – 1:10

Textbook: Starting Out With Python 2nd Edition, Tony Gaddis

STUDENT OUTCOME OBJECTIVES:
1. Develop abstract, computational data models
2. Follow and explain an explicit Design Recipe to go from an idea to a final program
3. Develop test procedures for programs
4. Write programs over atomic data, classes, mixtures of data, and data of arbitrary size
5. Use basic input and output libraries for text, graphics, plots, and files
6. Use function composition correctly
7. Use conditional statements correctly
8. Explain state, mutation, and scoping in programming
9. Write iterative programs using `for` and `while` loops
10. Write recursive programs
11. Familiarity with basic searching and sorting algorithms
12. Recognize basic time/space behavior of simple programs
13. Abstract over and analyze simple programming patterns (refactoring)
14. Write programs for numeric problems

CLASS RULES:
1. **Failing all three exams is automatic failure in this course, regardless of total class scores**
2. **If you don't attend class, don't expect to pass this course**
3. **All labs and projects must be submitted via Sakai.**

ATTENDANCE POLICY:
- **Lab attendance is MANDATORY** See **Lab** section for details.
- Attendance in lecture, though not mandatory, is expected. You are responsible for anything taught or announced in lecture. If you choose not to come, it is your job to find out what is going on without extra help from me. **This includes class notes!** You have a partner – use him or her! If you need extra help, I expect to see you in office hours.

EMAIL:

Email is the only consistent method of communication I have with the entire class. It is imperative that you know that you are receiving mail from the class list. Anything mailed at least 24 hours prior is considered your responsibility to know. It may be very helpful to check email before, during or after any unusual event (i.e. power outages, snow, tests, holidays) Check the UD Homepage for any University wide cancellations.

LABS AND PROJECTS:

In this class you will be using paired programming. Every few weeks you will be assigned a partner who is also in your lab. In paired programming, one partner will be the navigator, and one will be the driver. The navigator should be instructing the driver what to do, and the driver should be typing into the computer. You and your partner should switch roles every 15 minutes to ensure you are both comfortable in either role. The paired partner concept shall be discussed in more detail in class.

After every lab, you will be expected to fill out a partner-review form. The partner review form will include questions such as, "Did your partner do their fair share of work?" and "Did your partner make contributions to the completion of the lab assignment?" Your lab score will be calculated as a combination of the lab grade multiplied by your peer review score. So, for instance, if your lab grade is 90% and your peer review score is 50%, your final lab score will be 45%.

Lab session attendance:

Lab attendance is REQUIRED!

Lab session attendance is mandatory. If you cannot make your lab session, it is your responsibility to let your partner know ahead of time. S/he will be assigned to another group for that week. Keep in mind that missing labs will most likely adversely affect your peer review score.

A place is reserved for you during lab time. It is the only time you can be GUARANTEED access to a machine, the lab materials, the software and the Teaching Assistant (TA). *To receive full credit for attendance, you must attend the lab session until you have COMPLETED the lab being worked on that day, NOT the one that is due. If you leave early without turning in that day's lab, it will be considered an absence.*

Learn your Section number and the name and email address of your TA!

Keep your TA informed about planned absences. Send email just prior to or immediately after any absence from lab, even if you've told the TA ahead of time. This makes record keeping so much easier.

You are allowed 3 absences from lab. If you miss more than 3 labs, you will receive a 0 for lab attendance. Keep in mind that You are still required to turn in the lab assignment by the due date. Notes attesting to visits to the infirmary will <u>NOT</u> result in an excused absence from lab.

Lab assignments:

Labs are due Sunday at midnight unless otherwise instructed.

If you turn it in after the due date, it will be considered late. For each day that a lab is late, you will lose an additional 10%. Labs will not be accepted after 7 late days. Penalties are based on when the assignment is TURNED IN, not when it was run on the computer.

<u>IMPORTANT - KEEP YOUR RETURNED GRADED LABS WITH YOU UNTIL THE END OF THE SEMESTER AS A PROOF IN CASE YOUR LAB SCORES HAVE BEEN INCORRECTLY RECORDED.</u>

EXAMS:

Attendance is MANDATORY for all exams. If an exam is missed because of an excused absence, it cannot be taken later and it will not be included in the computation of the final grade; the other exams will be weighted extra. If an exam is missed because of an unexcused absence, it cannot be taken later, and a score of 0 will be included in the computation of the final grade.

The Final Exam is **cumulative**. Final Exam Schedules are not known until halfway into the course. *Do not plan to leave before the end of exam period.* This class has often had its final on the last possible day.

ACADEMIC DISHONESTY:

Collaboration with anyone is ENCOURAGED for any in-class work.
Collaboration of any kind is PROHIBITED during Exams.

Copying any other person's work (off the Internet, for example) without proper acknowledgment is plagiarism, a serious offense, and the one most common to computer science courses. Anyone that aids another student with work that is expected to be done without collaboration is as guilty as the person who seeks help. Both will be prosecuted. It is strongly recommended that you familiarize yourself with the University's Policy of Academic Dishonesty.

Please be advised that the University of Delaware Academic Honesty & Dishonesty Policy is taken seriously by this Instructor and NOTE WELL that it will be followed in the conduct of this course. This policy covers all forms of

- Plagiarism, including "copying, or allowing another student to copy, a computer file that contains another student's assignment, and submitting it, in part or in its entirety, as one's own";
- Fabrication, including "submitting as your own any academic exercise (e.g., written work, printing, sculpture, etc.) prepared totally or in part by another";
- Cheating, including "copying from another student's test paper, allowing another student to copy from a test paper, collaborating on a test, quiz, or other project with any other person(s) without authorization"; and
- Academic Misconduct, including "other academically dishonest acts such as … taking part in obtaining or distributing any part of an unadministered test".

Course Assignments:

All reading assignments, homeworks, labs and projects will be posted to the course Web site (http://www.eecis.udel.edu/~yarringt/106). You are responsible for checking the Web site regularly to make sure you are on target.

Grading:

Midterm 1	15%	Projects	17%
Midterm 2	15%	Labs	30%
Final Exam	20%	Lab Attendance	3%

Scale:

Number	100-95	94-90	90-87	87-83	83-80	80-77	77-73	73-70	70-67	67-63	63-60	<60
Letter	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Week of	Tentative Course Schedule
Aug 27	Syllabus / Introduction to Computers *August 28: First day of class*
Sep 3	Intro to Python, atomic data, simple functions (Chap 3) Sept 3: Holiday (no classes)
Sep 10	Variables, function composition, Boolean expressions (Chap 3) Sept 11: Last day to add a course
Sep 17	Conditionals, Logical Operators, Nested if (Chap 4)
Sep 24	Loops (Chap 5)
Oct 1	Loops (Chap 5)
Oct 8	File IO (Chap 7) Lists (Chap 8) **Exam 1**
Oct 15	Lists/Tuples (Chap 8)
Oct 22	Search/Sort/Analysis Oct 23: Last day to withdraw without penalty
Oct 29	Recursion
Nov 5	**Exam 2** *Nov 6: Election Day, Classes Suspended*
Nov 12	Matlab – Intro, basics
Nov 19	Matlab Functions/Matrices *Nov 21 – 23: Thanksgiving Holiday, Classes Suspended*
Nov 26	Matlab
Dec 3	Matlab *Dec 6: Reading Day (no classes or exams)*
Dec 10	Finals *Dec 14: Last Day of Final Examinations*