CISC 106, General Computer Science for Engineers, Fall 2010

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: None
Co-requisites: MATH 117 or MATH 115 (pre-calculus)

Instructor: Dr. James Atlas, 415 Smith Hall, jatlas@udel.edu
Office Hours: Tue 1-4pm, Thu 1–4pm
Textbook: Gaddis, Starting Out with Python, 1/E. Addison-Wesley 2008.

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/Laboratory Schedule: Three lecture sessions per week, 50 minutes per session
One lab session per week, 50 minutes per session

Week	Starts	Objectives	Text Coverage (chapter)	Lab	Notes
1	**29-Aug**	1,2	2.1-2.7	1	Math pre-test 3-Sep
2	**5-Sep**	3,4a,5a	1,2.8,3.1-3.3	2	No class 6-Sep
3	**12-Sep**	4a,5b,6	3.4-3.6,6	3	Time Management Workshop 13,16-Sep
4	**19-Sep**	7,4b	4, 9	4	
5	**26-Sep**	4b,4c	9		
	6-Oct	**EXAM 1**			
6	**3-Oct**	4d	8.1	5	Project 1 assigned 8-Oct
7	**10-Oct**	8,9, 5c	8.2-8.3, 5	6	
8	**17-Oct**	10,11a	11		
9	**24-Oct**	11b,12a	supplement 1	7	
10	**31-Oct**	12b,13			Project 1 due 31-Oct, Project 2 assigned 5-Nov
	10-Nov	**EXAM 2**			
11	**7-Nov**	14	supplement 2	8	Matlab transition
12	**14-Nov**	14,5d		9	
13	**21-Nov**	14			No class 24,26-Nov
14	**28-Nov**	14			
15	**5-Dec**	14			Last class 8-Dec, Project 2 due 5-Dec

Grading:

Midterm 1	15%	Projects	5+10%
Midterm 2	15%	Labs	30%
Final Exam	15%	Activities	5%
Participation	5%		

Scale:

Number	100-93	93-90	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

Participation: We will be using the i>clicker system for in class participation and as an immediate feedback mechanism. At times during the semester we will also do group exercises and hold class discussions. You should aim for an 80%+ participation rate for full credit.

Activities: There are 5 specific course required activities that you must complete to receive full credit:

1. Math pre-test
2. Time Management Plan – student to attend workshop or complete online, must submit developed plan
3. Time Management Assessment – student to evaluate plan, must submit assessment
4. Final project group evaluation
5. End of course evaluation

Labs: All lab assignments are assigned Friday morning and are due the following Sunday evening (9 days total to work on the assignment). Lab attendance is required and is worth 10% of the lab grade. All lab submissions must be online through Sakai. Late items may be submitted to Sakai after the due date at a penalty of 15% per day up to a maximum of 4 days late (no lab assignment submissions will be accepted after the Thursday following the due date).

Projects: Project 1 is a smaller group project for 2 people. Project 2 is a larger group project for 4 people, intended for two sets of pair programmers.

Final Grade Rule: *Your final grade cannot be more than one letter grade higher than your best exam grade.* This is to ensure mastery of fundamental skills.

Collaboration vs Cheating:
Collaboration with anyone is ENCOURAGED for any in-class work.
Collaboration of any kind is PROHIBITED during Exams.
In the Real World, programming is almost never a solo activity. After the first two labs (which explicitly state they are to be done individually), this class will use a standard industry eXtreme Programming [XP] technique called Pair Programming for Labs. In Pair Programming, you work on problems together, simultaneously, with one person running the keyboard and the other looking on. You should switch the keyboard every 15 minutes or so.

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.