CISC 106, General Computer Science for Engineers, Fall 2017

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 engineering.

Prerequisites: None

Co-requisites: MATH241 or any higher level MATH course (calculus)
Restrictions: Students may not receive credit for both CISC106 and CISC108

Instructor: Katie Wassil
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Office Hours: TBA
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Primary Resources:

CISC106 Fall 2017 course page : http://www.udel.edu/canvas/
How to Think Like a Computer Scientist
http://interactivepython.org/runestone/static/thinkcspy/index.html
MATLAB® Primer
http://www.mathworks.com/help/pdf_doc/matlab/getstart.pdf

Textbooks/Materials: i>clickers are required.

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 inputs to test for program correctness
4. Understand and write programs over data and structures: integers, floats, booleans, strings, lists, matrices, dictionaries, classes
5. Use basic input and output libraries for text, graphics, plots, and files
6. Write programs using library and programmer defined functions
7. Write programs using conditional statements and boolean logic
8. Understand and explain state, mutation, and scoping in programming
9. Write and understand iterative programs using `for` and `while` loops
10. Write and understand recursive programs and algorithms
11. Understand basic searching and sorting algorithms and their complexity
12. Recognize basic time/space behavior of simple programs
13. Abstract over and analyze simple programming patterns (refactoring)
14. Use MATLAB to simulate, solve, and visualize engineering problems at an introductory level

Canvas – Course Page: http://www.udel.edu/canvas/ Announcements, lectures and other resources for this course can be found on the Canvas Course Page. Announcements/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 Canvas list. Anything announced at least 24 hours prior is considered your responsibility to know. Check email regularly and before, during or after any unusual event (i.e. power outages, snow, tests, holidays).

Grading:

Midterm Exam 1	12%	Midterm Exam 2	12%	Final Exam	20%	Quizzes	6 %
Mini-Projects	20%	Labs	25%	Class 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

Grade Rules: *Your final numerical grade cannot be more than 10 points higher than your exam+quiz average*. This is to ensure mastery of fundamental skills. For example, a student with a 61% exam+quiz grade and a 100% lab+project+participation would receive a final numerical grade of 71%.

Class and Lab Session Rules: Our classroom and laboratory environment is mutually respectful and inclusive of all students. Our classroom is an environment with no discrimination of race, gender, age, background, previous programming experience, etc, where everyone is comfortable and at liberty to contribute to, and benefit from the entire learning experience. Please see attached addendum for University of Delaware's Policy on Harassment and Discrimination.

Computer Science is a discipline where effort to master difficult material will increase your intellectual ability. It takes time to "get" computer science -- keep working at it and know that with more practice it gets easier. Your instructor, teaching assistants, and lab assistants all want you to succeed -- we can help with the specific feedback you need to hone your skill. Learning to think like a computer scientist and to apply computer science principles to engineering domains is a problem solving approach that transcends CISC106 -- you will encounter computational problems in your other courses at the University of Delaware and in your career. You may currently be a novice, advanced, or expert computational problem solver -- we hope that in this course you learn to value and aspire to long-term growth in this skill.

Laptops and Cell Phones: Your full attention is expected in class. Texting or using a laptop to read email, play video games, or use Instagram/Facebook/Snapchat is not allowed. At the beginning of class, please turn off your cell phone. The only permitted use of a laptop during lecture time is for taking notes, or using Wing IDE to program in Python. Do not use your laptop or cell phone during class for purposes other than CISC106. Thank you for your future cooperation.

Lectures Attendance: Students are required to attend ALL class lectures. Students are responsible for anything taught or announced in lecture. Not all of the material covered in class is contained in the lecture slides. Attendance is evaluated indirectly through participation of clicker questions which account for 5% of your grade. Your clicker grade is based on the number of times you respond out of the number of opportunities. It is not based on the quality of your answers, just the number, so please click. An exception to this will be students who persistently choose invalid responses.

Lab Attendance: Students are required to attend ALL lab sessions. Attendance is marked by your TA as follows: Absent = 0, Late = 1, Present = 2, Excused = no grade (that class is not considered in grade).

Excused Absences: If you are going to be absent due to a religious holiday that is listed on the University Academic Calendar (http://www1.udel.edu/registrar/cal/calendars/2017-2018.pdf), please let your instructor know. If you are going to be absent due to a religious holiday that is not on the calendar or due to an athletic participation or other extracurricular activity where you are representing the University, you need to let your instructor know in writing during the first two weeks of the semester.

Quizzes: There will be a very brief quiz given during lab session every week except the first week and the two midterm exam weeks. A password to unlock the quiz will be given to you by the TA in the lab. There are 11 quizzes total and your quiz grade will be based on your best 10 quizzes. The quiz is time-locked and cannot be completed after the quiz date. There are no makeup quizzes -- all missed quizzes will go into the gradebook as a 0. An excused absence from a quiz will lower the number of quizzes used to compute your quiz grade (for example, a student with 1 excused quiz absence will have a quiz grade based on her/his best 9 quizzes).

Labs: All lab assignments are intended for a pair or programmers. They are assigned Tuesday morning and are due the following Monday evening. All lab submissions must be online using the quiz server. Because the online system saves progress as each question is completed, **NO LATE SUBMISSIONS** will be accepted. You are encouraged to complete questions early and not wait until the deadline. If you believe there is a problem or discrepancy with the online system you must contact your TA by email or resolve it within TA office hours within one week of the assignment closing time.

Mini-Projects: All projects are assigned Tuesday morning and are due on a Monday evening (at least 7 days total to work on the assignment -- two of them span exams and have more time allocated). All projects are intended for a pair of programmers and involve a linear progression through a larger problem solving exercise related to a specific engineering problem domain. Some mini-projects involve tools and/or programming languages other than Python3 with Wing101. You are encouraged to arrange a time to start your project with your partner early so that you familiarize yourself with the tool and are able to get help for any setup or partner issues early. Mini-projects may have individual adjustments in the case that student contributions within a pair are significantly disproportionate.

Exams: There will be two midterm exams and one final exam. All exams are considered to be cumulative but the first midterm will focus on material from weeks 1-5 and the second midterm will focus on material from weeks 6-10.

Collaboration vs Cheating: Collaboration with anyone is ENCOURAGED for any *in-class* work. Collaboration of any kind is PROHIBITED for during Exams and Quizzes.

Collaboration for your mini-projects and labs with your partner is REQUIRED. Collaboration for your labs and mini-projects with anyone other than your partner is PROHIBITED. In the Real World, programming is almost never a completely solo activity. This class will also use a standard industry eXtreme Programming [XP] technique called Pair Programming for Mini-Projects and 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 read the attached addendum regarding the University's Policy of Academic Integrity.

Entering i>clicker responses on behalf of another student is considered academic dishonesty.

CISC 106, Technology Setup (Optional)

You will use the eCALC space during your assigned laboratory time. You may also use any eCALC space at other times during the week as long as another class has not reserved the space. See http://www.engr.udel.edu/ecalc/ for current availability in the 3 lab spaces. These computers are already setup with the software environment you need for CISC106. If you would like to setup your own computer, here are some links to downloads and installation instructions:

- https://quiz.cis.udel.edu
    - This is our interactive quiz and assignment submission server. You can access this server from your web browser from anywhere on campus. If you are off campus you must first connect to the University of Delaware Virtual Private Network (VPN). See https://www.udel.edu/it/help/connecting/vpn/ for setup directions.

- Python version 3.5 (or later -- I am currently using 3.6.2)
    - https://www.python.org/downloads/

- Wing101 IDE version 5.1 editor and python code running environment (or later -- I am currently using 6.0.6-1)
    - http://wingware.com/downloads/wingide-101

- (OPTIONAL) - Hold off on the purchase of this until we discuss in Lecture
    - MATLAB R2016a or later-- cost is $99 or $49 for a student license
    - http://www.mathworks.com/academia/student_version

Addendum: University of Delaware's Policies Regarding Academic Integrity, Harassment, Sexual Misconduct, and Diversity

Academic Integrity

Please familiarize yourself with UD policies regarding academic dishonesty. To falsify the results of one's research, to steal the words or ideas of another, to cheat on an assignment, to re-submit the same assignment for different classes, or to allow or assist another to commit these acts corrupts the educational process. Students are expected to do their own work and neither give nor receive unauthorized assistance. Complete details of the university's academic integrity policies and procedures can be found at http://www1.udel.edu/studentconduct/policyref.html Office of Student Conduct, 218 Hullihen Hall, (302) 831-2117. E-mail: student-conduct@udel.edu

Harassment and Discrimination

The University of Delaware works to promote an academic and work environment that is free from all forms of discrimination, including harassment. As a member of the community, your rights, resource and responsibilities are reflected in the non-discrimination and sexual misconduct policies. Please familiarize yourself with these policies at www.udel.edu/oei. You can report any concerns to the University's Office of Equity & Inclusion, at 305 Hullihen Hall, (302) 831-8063 or you can report anonymously through UD Police (302) 831-2222 or the EthicsPoint Compliance Hotline at www1.udel.edu/compliance. You can also report any violation of UD policy on harassment, discrimination, or abuse of any person at this site: http://sites.udel.edu/sexualmisconduct/how-to-report/.

Faculty Statement on Disclosures of Instances of Sexual Misconduct

If, at any time during this course, I happen to be made aware that a student may have been the victim of sexual misconduct (including sexual harassment, sexual violence, domestic/dating violence, or stalking), I am obligated to inform the university's Title IX Coordinator. The university needs to know information about such incidents in order to offer resources to victims and to ensure a safe campus environment for everyone. The Title IX Coordinator will decide if the incident should be examined further. If such a situation is disclosed to me in class, in a paper assignment, or in office hours, I promise to protect your privacy--I will not disclose the incident to anyone but the Title IX Coordinator. For more information on Sexual Misconduct policies, where to get help, and how to reporting information, please refer to www.udel.edu/sexualmisconduct. At UD, we provide 24-hour crisis assistance and victim advocacy and counseling. Contact 302-831-1001, UD Helpline 24/7/365, to get in touch with a sexual offense support advocate.

For information on various places you can turn for help, click here. For more information on Sexual Misconduct policies, where to get help, and reporting information please refer to www.udel.edu/sexualmisconduct.

Inclusion of Diverse Learning Needs

Any student who thinks he/she may need an accommodation based on a disability should contact the Office of Disability Support Services (DSS) office as soon as possible. The DSS office is located at 240 Academy Street, Alison Hall Suite 130, Phone: 302-831-4643, fax: 302-831-3261, DSS Website (http://www.udel.edu/DSS/www.udel.edu/DSS). You may contact DSS at dssoffice@udel.edu

Non-Discrimination

The University of Delaware does not discriminate against any person on the basis of race, color, national origin, sex, gender identity or expression, sexual orientation, genetic information, marital status, disability, religion, age, veteran status or any other characteristic protected by applicable law in its employment, educational programs and activities, admissions policies, and scholarship and loan programs as required by Title IX of the Educational Amendments of 1972, the Americans with Disabilities Act of 1990, Section 504 of the Rehabilitation Act of 1973, Title VII of the Civil Rights Act of 1964, and other applicable statutes and University policies. The University of Delaware also prohibits unlawful harassment including sexual harassment and sexual violence.

For inquiries or complaints related to non-discrimination policies, please contact:
Director, Institutional Equity & Title IX Coordinator- Susan L. Groff, Ed.D. groff@udel.edu, 305 Hullihen Hall Newark, DE 19716 (302) 831-8063

For complaints related to Section 504 of the Rehabilitation Act of 1973 and/or the Americans with Disabilities Act, please contact: Director, Office of Disability Support Services, Anne L. Jannarone, M.Ed., Ed.S. - ajannaro@udel.edu
Alison Hall, Suite 130, Newark, DE 19716 (302) 831-4643 OR contact the U.S. Department of Education - Office for Civil Rights (https://wdcrobcolp01.ed.gov/CFAPPS/OCR/contactus.cfm)