Syllabus  CMP 112
Computational Thinking I
4 credits
Tuesday 6:00 pm - 9:35 pm
Spring 2016 – Section H

Instructor:  Eric Anderson
Office Hours:  Tuesday 5-6 (in the classroom New Hall TC09) or by appointment
E-Mail:  Epanders@carrollu.edu or andersoe@kmsd.edu ***

Prerequisites:  College Algebra (MAT 101) or placement recommendation

Textbooks:  OpenIntro Statistics, Third Edition  (Required – free download)
Diez, Barr, and Cetinkaya-Rundel
http://www.openintro.org/stat/index.php

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Grading:  Homework (40%), Quizzes (20%), Assessments (40%)

Grade Scale:

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<th>Grade</th>
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<td>A</td>
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<td>AB</td>
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<td>B</td>
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<td>BC</td>
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<td>C</td>
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<td>D</td>
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Assessments
Midterm Exam:  Tuesday, March 7th 6:00 pm
Final Exam:  Tuesday, May 9th 6:00 pm
Article Summary:  Tuesday, May 9th 6:00 pm

Tentative Schedule:
Weeks 1- 7: Intro to Statistics, applied Excel commands, Python programming and linear models
Weeks 8 – 14: Advanced Python programming techniques, applied Excel commands, and Statistical Analysis
Course Overview:
The purpose of this course is to introduce students to mathematical and computational techniques useful in the health, natural, and social sciences. The focus will be on basic statistics and computer interaction, both graphical and textual. Students will gain a basis for developing strong 21st Century job skills.

Course Objectives:
This course intends to introduce students to
1. Some essential elements of computational thinking
2. Basic statistical analysis concepts
3. Essential computer literacy skills

Learning Outcomes: (assessment will be conducted via homework, quizzes, midterm exam and final exam)
By the end of this course, students should be able to:
• Use a computer to solve equations. (Obj 1, 3)
• Use a computer to optimize functions. (Obj 1, 3)
• Make the connection between real-world processes and their corresponding mathematical models. (Obj 2)
• Analyze data using both linear and non-linear regression models. (Obj 1-3)
• Design and use probabilistic models to simulate stochastic processes. (Obj 1-3)
• Create and interpret appropriate visualizations of data sets. (Obj 1-3)
• Analyze data sets using descriptive statistics and basic inferential statistics. (Obj 2)
• Communicate with a computer using both graphical and text interfaces. (Obj 1, 3)

Course Policies:

Academic Integrity: All work on assignments, quizzes and tests is expected to be your own and represent your ability in course content. The Carroll University Academic Integrity Policy is located in your student handbook. Please familiarize yourself with this policy. If a student violates this policy in any way, the instructor or College reserves the right to impose a sanction of failure on the assignments/assessment or failure in the course.

Attendance: It is expected that you attend every class meeting. The textbooks cover much, but not all, of the course material. Other reading material will be made available through handouts or web links, and some material will only be available in class as part of class discussion. You will be accountable for all material covered in the class with no exceptions. Some of the homework grade will be determined by in-class projects and quizzes. Unexcused absences will result in a score of zero for those assignments.

Homework: Homework will be assigned as an aid to learning the material. It is expected that completing the assigned problems and reading the section to be covered in the next class will require up to two hours each night. You are encouraged to work on it in groups, using any and all resources at your disposal. Late homework will not be accepted without a valid medical excuse or prior arrangements. Failure to submit homework in a timely manner will result in forfeiture of credit for that assignment. Some of the
homework will involve in-class exercises and discussion. To earn a good grade for these, you will need to 1) Attend class, 2) Participate fully in the exercises, and 3) Ask questions, answer questions, and suggest ideas during discussion.

Assessments: Assessments in this section are defined as culminating pieces of evidence that will allow students to show their mastery – assessment may include: in class tests, take home tests, projects, presentations papers. This is a list of examples and is not meant to be exhaustive. All assessments for the semester will be announced and placed on the class page with at least three weeks’ notice.

Quizzes: There will be regularly scheduled content quizzes and reading quizzes to encourage pre-reading of material. These will be assigned through LMS and must be completed before class on the day they are due.

Accommodation for Disabilities: If you need accommodations for a documented disability, or are considering obtaining documentation, you should make an appointment with Martha Bledsoe, our disabilities coordinator, no later than the first week of class. She can be reached by calling 262-524-7335 or contacting her via e-mail at wyc@carrollu.edu. It is your responsibility to get any paperwork turned in to your instructor as soon as possible so that they are able to make the required accommodations.

Carroll Portal (LMS): This class will use the Carroll Portal for various purposes. Homework descriptions and data files will be posted there as needed. Your grades will be posted there when available. Please keep track of your grades yourself as well, and if you notice any errors, please let your instructor know as soon as possible.

Computer Policy: This class is being held in a computer classroom. It is expected that all computer use be class-related. Chat programs, email, games, social media interaction, and unrelated browsing are not to be used during class. Student screens can be seen from the main terminal, and students observed breaking this rule will be asked to leave and marked absent for the day. Note that cell phones, iPods, etc. are all small computers, so this rule applies to them as well.

*The instructor and the University reserve the right to modify, amend, or change the syllabus, course requirements, grading policy, etc., as needed. Students will be notified of any changes during the lecture periods.*