



WRIGHT COLLEGE
One of the City Colleges of Chicago
COURSE SYLLABUS
Spring 2018

Course Number and Title: Engr 190 Computer Applications in Engineering

Length of Course: 16 weeks / 1 semester

Credit Hours: 3 **Contact Hours:** 3 **Course:** 60208

Prerequisite: Math 207 or consent of chair.

Course: 4:30-5:50PM Engr 190-P Comp Appl In Engineering (60208) Room: A312
Instructor: Julius Nadas

Phone: 773-481-8340 (Please do not call)
EMAIL: jnadas@ccc.edu I prefer to be contacted via email.
OFFICE HOURS: posted at: <http://faculty.ccc.edu/>

Catalog Description: Computer applications in engineering using scientific programming languages such as Javascript, FORTRAN, BASIC, PASCAL and C with emphasis on engineering problems encountered in design and manufacturing. Writing assignments, as appropriate to the discipline are part of the course.

Required Texts and Materials:

ISBN 0-07-243193-8; Numerical methods for Engineers, 4th Edition, by Chapra & Canale and any computer that can execute programs written in one of the above programming languages.

Course Expectations: Students will learn how to write procedural programs that implement standard numerical algorithms.

Course Objectives: To use a computer to solve typical engineering problems

Clientele for Course: Math or Engineering students.

Measureable Student Learning Outcomes: Students will write programs that demonstrate their ability to solve the following types of assignments:
Using infinite series to approximate transcendental functions.
Finding roots of polynomials and other continuous functions
Manipulating vectors and matrices to solve systems of simultaneous linear equations

Calculating linear regression and correlation
Interpolation using other methods
Integrating continuous functions using numerical methods
Finding Numerical Solutions to Ordinary Differential Equations

Method of Instruction: Face to face lecture, on line- hybrid tutorials and written assignments.

“No Show” Policy: If a student has registered for the course before the start time of the first class period, but did not attend either of the first 2 classes and failed to notify the instructor of his or her intentions to continue the class, the Registrar’s Office will remove the student from the course.

Academic Integrity: The City Colleges of Chicago is committed to the ideals of truth and honesty. In view of this, students are expected to adhere to high standards of honesty in their academic endeavor. Plagiarism and cheating of any kind are serious violations of these standards and will result, minimally, in the grade of “F” by the instructor.

Student Conduct: City Colleges of Chicago students are expected to conduct themselves in a manner which is considerate of the rights of others and which will not impair the educational mission of the College. Please consult the Student Policy Manual posted on the CCC website for information regarding misconduct for which students are subject to College Discipline such as expulsion. My goal is to provide a positive learning environment for every student and I expect each one of you to work toward the same end.

Disability Access Center: Please note: Any student with a disability, including a temporary disability, who is eligible for reasonable accommodations should contact the Disability Access Center located in room L135, Learning Resource Center of the Wright North Campus or call (773) 481-8016 as soon as possible.

Classroom Etiquette: Students are expected to engage in active participation in all classroom activities. Since the instructor has not mastered the art of clairvoyance it is incumbent on each student to utilize verbal communication techniques to convey any questions they may have.

Programming language options:

Recommended: Javascript for all computers, tablets and phones. If you don't already have a computer me about Chromebooks and Caret.

Also acceptable languages, but you need to provide your own software, Ada, Assembly/Native Machine Code, Algol, Basic, C(ANSI), C++, C#, Fortran, Java, Pascal, PHP, Python, QBasic, Simula, and Vbasic. These are some of the languages I have used, other languages may be acceptable as long as they have the required math library, talk to me.

Active Pursuit Policy: You will receive an ADW grade at midterm if you have not turned in the first four programs or did not take the midterm exam at the scheduled time. If you stop attending class after midterm and you do not officially withdraw from the class you will be given an “F” grade.

Calendar: The CCC Academic Calendar can be found here:
<http://www.ccc.edu/events/Pages/default.aspx?cat=Academic%20Calendar>

Test Dates are: March 10 and May 12. You may contact me for alternate arrangements as long as you take the test by the Monday following the scheduled dates.

Topical Course Outline:

1. Basic IT concepts for all operating systems
 - Files and folders, different file types and file conversion utilities
 - Local storage, LANs, WAN's and the cloud; file names and URLS's
2. The role of a computer in solving problems:
 - Programs: browsers, compilers, interpreters, text editors
 - Data files – file extensions and program associations – submitting your homework.
3. HTML, CSS and Javascript.
4. Mathematical concepts: Continuity, discrete data, comparison and precision
5. Programming concepts: Data types: Numbers and Strings, operators and properties
6. Input, Processing and Output. Assignment of values.
7. Conditional execution with the IF statement.
8. Repetition and loops with the WHILE statement.
9. Top-down design with subprograms and recursion.
10. Strings, arrays and other objects
11. Sequential and direct access files

Homework Assignments and TESTS:

Assg. Chap	Date Due	Description
1/23	2/8	Finite difference approximations
2/4	2/15	Maclaurin series approximations
3/5	2/22	Bisection & False Position
	3/26	Spring Break
4/6	3/1	Finding roots using Newton Raphson & Secant
5/17	3/8	Linear regression - Midterm exam
6/21	4/12	Evaluating definite integrals
7/18.2	4/19	Generating Lagrange Polynomials
8/9	4/26	Gauss-Jordan Elimination
9/18.6	5/3	Quadratic spline interpolation
10/25.5	5/10	Solving Ordinary Differential Equations – Final Exam

All homework must be turned in via Blackboard.

copy/paste the output from the program as a text submission

attach the program as a File using the Browse my Computer button.

You must turn in homework by the due date to receive any credit. No late submittals will be accepted.

You can have up to three attempts to get full credit on each homework assignment.

I will try to grade submissions at least once a week, so in theory you should have several opportunities to improve your scores.

Method of Evaluation of Student Performance:

10 programs = 50% + Midterm Exam = 25% + Final Exam = 25%

Grade Scale:

- A = 90% or above
- B = 80% or above but less than 90%
- C = 70% or above but less than 80%
- D = 60% or above but less than 70%
- F = less than 60% average
- D/F = less than 40% on Exit test

Support Services:

Wright College is committed to your success! Below you will find a list of offices you may wish to contact during the semester for assistance:

Academic Support Center (Tutoring)	Room A-245
Center for Academic Success (Advising)	Room A-120
Writing Center (for help with papers)	Room L-212
Wright in Your Corner (Student Center)	Room S-100
Emporium (tutors)	Room S-102
Financial Aid	Room A-128
Business Services	Room A-138