This course continues your study of computer programming. The stress is on the theory and practice of implementation of procedural languages. You will develop a complete compiler for a small language during the course.

Text Book:
Watt and Brown: Programming Language Processors in Java
AND

Supplementary:
Fischer & LeBlanc, Crafting a Compiler with C, Benjamin/Cummings, 1981.
Aho, Hopcroft, & Ullman, Compilers, Techniques, and Tools, Addison Wesley, 1986
Sudkamp, Languages and Machines, Addison-Wesley, 1988.

You will need:
1. **Fluency** in Java or C++.
2. A basic understanding of the principles of large program development, computer architecture and assembly language, data abstraction, abstract machines. e.g. Turing Machines.
4. Access to a Java system; either the JDK from Sun or a commercial product will do, but it must support Java 1.1 or later. Eclipse, Kawa, JCreator, JBuilder, or Codewarrior are recommended
5. Time, Energy & Enthusiasm.
6. A copy of the course files. They are obtained online via my home page

**Grading:**
1. Assignment 1. Due the third class period. Extend the MicroGCL Language from the course materials to include an IF THEN ELSE END statement. 10%. Individual assignment.
2. Project. Due the next to last class period. Extend the GCL language to add all features in the manual on the internet. 70%. Team assignment. Teams of two persons should be formed by the third class period. This assignment is to be turned in in both hard-copy form and on diskette. The materials will not be returned.
3. Final Exam covering primarily comparative methods. 20%.

**Contacting the professor.**
If you are not having difficulty within 2 weeks you aren’t working hard enough. If you are having difficulty, come and visit or send email to the course list. My job is to help you out of your difficulties. Don’t send me 500 lines when 50 will do, however.

Various files may be obtained from the WWW accessed via my home page. Look there for the Compiler Course. This material will change periodically, even frequently.

An on-line discussion group is set up for use by students in this course (CS605-Is). You will need to send an initial email message to majordomus@csis.pace.edu to get enrolled. You should then check your mail frequently. You must contribute to this group. It will be a primary means of communication. You may also communicate with the instructor via email, though most discussions should be done via the mailing list so that all may benefit from your developing expertise.

There is also an interactive web site (wiki) that we will use during the course to keep in contact. Check it frequently (several times a week).
**Bonus possible:**

There are two ways to earn a small bonus. \( \leq 5\% \) Note that bonus points will not be awarded to cover deficient work, but to increase the point values of acceptable work.

1. If you finish early on the project and have done an acceptable job, there will be a series of extensions possible which go beyond the manual and the stated requirements.
2. If you build tools to aid in the compiler building process (e.g. see the code to print out the contents of a symbol table and semantic stack) and submit it to a general library, and if it is adopted by other teams.

It is expected that all students will pass the course. Exceptions may have to be made for missing work, excessive absence, very careless work, or work not developed according to accepted development principles (no hacking). Exceptions will always be made for dishonest work--you will fail the course.

**Ground rules:**

1. **Attendance:** Students are expected to attend all lecture periods. Chronic absenteeism can have a negative effect on your final grade.

2. **Assignments:** Students are expected to complete all work by the beginning of class on the assigned due date.

3. **Plagiarism:** In a course where much of the assigned work is stored on the computer, it is tempting to use another person’s work as your own. While I encourage students to assist each other with the lab work, any detected plagiarism will be dealt with severely - resulting in a failing grade for the lab and possible failure of the course. Never give code segments to your classmates or friends, as the above mentioned penalties apply equally to the provider of illicit information. You may discuss the lab assignments in general, but do not cooperate in the coding or structure of the program. Protect yourself by safely disposing of your listings. Do not deposit them in wastebaskets where they can be used by a classmate.

Note that you may assist each other. This does not mean ‘working together.’ I expect each piece of work turned in by you to be your work. In particular, it should be the work of ‘one mind.’ There is obviously a fine line here. It is proper to approach a classmate with the statement. ‘On assignment X I have tried... and... and nothing seems to work.’ An appropriate response could be ‘Have you thought about the fact that...’ or ‘Do you remember what Doc said about...’ It is never OK to start out with ‘How do you do assignment X?’ And a completely inappropriate response in any case is ‘Here, look at this (my solution).’ The dividing line between the appropriate and the other has to do with the level of effort and the degree of progress made prior to seeking assistance, and for the helper the difference lies in the hint that aids enlightenment in the seeker versus the solution that prevents it.

Any evidence that materials from prior years have been used will likely result in failure of the course.

4. Most of your work in this class will be in a group. On group assignments you may, of course, freely share all ideas with your partner. You may also seek unlimited assistance from the instructor. The above comments (in #3) apply to all inter group communication.

**PROGRAM SUBMISSION STANDARDS**

I will review your work on your large project every two weeks. No grade is given for these reviews, but you will get feedback on your progress. Your team should prepare a report on the current status of the project for submission. See page _80_ of the notes for the REQUIRED format of your periodic reports. More information is also contained in the two assignment handouts.

**NOTE**

There is an online syllabus as well. It may be more up to date than this. It has additional information as well:

http://csis.pace.edu/~bergin/compiler/CompilerSyllabus.html