Instructor:
Dr. David Shaffer
Room 159 Hoyt Science
Office: (724)946-7292
Cell: (724)372-0430 – if you text me, please be sure to give your name and this course number.
e-mail: shaffecd@westminster.edu

Prerequisite: CS 251 (co-requisite)

Text:
See class web page for a list of books that we will use. All of these textbooks are free in electronic version.

Content:
• Role of Computer Languages, Language Description
• Type systems and semantics
• Imperative programming
• Object-oriented programming
• Functional programming
• Logic programming
• Event driven programming
• Language Description: Semantic methods and the lambda calculus

This material will be covered, in part, by conducting a survey of languages including one from each of the following paradigms: object-oriented, functional, logic.

Your responsibilities:
• Read ahead and understand text material.
• Complete/master the text, homeworks, labs and projects.
• Seek help immediately if you are struggling.
• Learn the material (sometimes in spite of presentation format).
• Substantial work outside of class.

Attendance: You are expected to attend all classes. Attendance will not constitute part of your grade but failure to attend will result in no credit for missed assignments, tests, quizzes, labs etc. Additionally, failure to attend will probably result in poorer performance on exams. I do not provide class notes to students who miss class, excused or unexcused.

Grading:
Letter grades are assigned based on the percentage, rounded to the nearest integer, of the available points that you receive. The grading scale is fixed. I do not curve. The grading scale is as follows:

<table>
<thead>
<tr>
<th>Letter</th>
<th>Percentage</th>
<th>Letter</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>[92,100)</td>
<td>A-</td>
<td>[90,92)</td>
</tr>
<tr>
<td>B+</td>
<td>[88,90)</td>
<td>B</td>
<td>[82,88)</td>
</tr>
<tr>
<td>B-</td>
<td>[80,82)</td>
<td>C+</td>
<td>[78,80)</td>
</tr>
<tr>
<td>C</td>
<td>[72,78)</td>
<td>C-</td>
<td>[70,72)</td>
</tr>
<tr>
<td>D</td>
<td>[60,70)</td>
<td>F</td>
<td>(0,60)</td>
</tr>
</tbody>
</table>
Exams:
Typically will be approximately 3 exams, one per programming paradigm covered, worth approximately 100 points each. The exam on the last language will be held during our final exam period. Dates for the other two exams will be posted on D2L.

Homework/Projects:
Homework (small assignments, usually consisting of conceptual questions or small program fragment solutions) will be given frequently. The point value of a homework depends on the scope of the assignment. Cooperation between students on homework assignments is encouraged but each student must submit their own homework solutions.
Projects (large programming assignments) will be given periodically. Typically one or two per programming paradigm. The point value of a project depends on the scope of the assignment. Projects are either “Individual” (no cooperation with classmates) or “Group” (cooperation within your group but not outside).
Expect to spend a substantial amount of time on homework and projects.

Assessment:
Assessment will be based on evaluation of the quality and correctness of homework, in-class labs, projects, quizzes and exams.

- All programs which are to be sent to me electronically are due 30 minutes before the class time on the due date.
- Lateness penalties:
  - 10% off per day, first 2 days (Sun and Mon count as separate days for any assignment that can be e-mailed or electronically copied; otherwise they count as one day).
  - 100% off after that

IMPORTANT EXCEPTION: All due dates which fall on the class day before an exam are absolute – there will be no late assignments accepted for them.

- I will take up to 5% off any assignment which is sloppy enough that it makes it difficult to read.

Program Grading Criteria (used for programs as part of projects, homeworks, exams etc):

<table>
<thead>
<tr>
<th>ERROR TYPE</th>
<th>DESCRIPTION</th>
<th>POINTS OFF</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obvious</td>
<td>Errors which the simplest of tests would detect</td>
<td>3-5 pts</td>
<td>Max for any one error is 10% of assignment</td>
</tr>
<tr>
<td>Subtle</td>
<td>Errors which only extensive testing would detect</td>
<td>2-3 pts</td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>Problem or sub-problem solved in a grossly inefficient way</td>
<td>2-5 pts</td>
<td></td>
</tr>
<tr>
<td>Cosmetic</td>
<td>Bad output format, prompts, documentation, indentation etc</td>
<td>1-2 pts</td>
<td>Max for all errors of this type is 10% of assignment</td>
</tr>
<tr>
<td>Compile Time</td>
<td>Program does not compile</td>
<td>25% off</td>
<td>Program will also be graded with respect to other criteria</td>
</tr>
</tbody>
</table>

NOTE: Just because a program works correctly does NOT guarantee that it will receive a perfect score – other factors such as readability, documentation, user-friendliness and efficiency are also important.

Academic policies:
Westminster College has adopted a standard academic integrity policy which is provided to you in your student handbook. In addition the department of Mathematics and Computer Science has a set of guidelines regarding academic honesty which can be found at: http://www.westminster.edu/staff/bonomojp/cheating.html. The policies discussed above are specific to my class. Breach of this academic honesty policy (ie cheating) results in a grade of 0 (zero) for that item. All incidents of cheating will be reported to the college Dean.
There are four types of work which I will evaluate in this course: homework, labs, quizzes and exams. Cheating on any of these will result in a grade of 0 (zero) for that item. Repeat or serious offenders will be referred to the college disciplinary board.

**Homework:** You are permitted to cooperate with other class members and to seek outside assistance on homework assignments. Should you work with other class members, each of you must turn in a separate copy of the homework to ensure that I give you proper credit for it.

**Labs:** You are permitted to cooperate with other class members and to seek outside assistance on lab assignments. Should you work with other class members, each of you must turn in a separate copy of the lab to ensure that I give you proper credit for it.

**“Individual” projects:** Absolutely no cooperation is permitted on these projects. Keep your work to yourself and don’t copy or seek help from others. You are not permitted to use any person’s help or code, except help which I provide to you specifically, in completing your projects. You are not permitted to discuss your solutions to these projects with anyone else.

**“Group” projects:** Absolutely no cooperation is permitted outside of your pre-assigned group. Keep your group’s work to yourself and don’t copy or seek help from anyone outside of your group. You are not permitted to use any group’s help or code, except help which I provide to you specifically, in completing your projects. You are not permitted to discuss your solutions to these projects with anyone who is not in your group. If any individual member of a group breaks these rules the entire group will be held responsible.

Should you ever find yourself questioning whether you, another group member, or another class member have been completely honest (in accordance with the above policies) in the completion of a project, please come talk to me before you turn in the project.

**Disabilities and special needs:** I will make any necessary, reasonable accommodations for students with disabilities. If you have a disability which requires accommodations, it is your responsibility to indicate to me that you have a disability and to discuss with me what special needs you might have regarding this class. In addition to notifying me, if you have a disability which requires class accommodations, you must make it known to Westminster College’s student affairs office so that they can send me the proper paperwork.

Westminster College actively strives for the full inclusion of all our students. Students with disabilities who require access solutions for environmental or curricular barriers should contact Corey Shaw, Director of Disability Support Services, located in 209 Thompson-Clark Hall. phone: 724-946-7192 e-mail: shawcj@westminster.edu.