# CS 310, Spring 2011 term

**http://www.csee.wvu.edu/~timm/cs310/**

# Overview

- Course name: CS310, Principles of Programming Languages
- Effective data of syllabus: Jan 11, 2011
- Site: LCSEE, WVU
- Course number: 10961
- Pre-requisite: successful completion of CS 111, Data Structures
- Course format: 3 credit hours 3 hr lectures, exams, weekly homework
- Textbook:
  - - Michael L. Scott, Programming Language Pragmatics (3rd edition) http://goo.gl/Vzku5.
  - - Paul Graham, ANSI Common LISP http://goo.gl/lDSVp.
- Schedule : Tuesday, Thursday, 1530-1645
- Location : ESB G39
- Instructor name: Tim Menzies Ph.D. ESB 841a, tim@menzies.us. Note: please use this email for private messages. For most of the class traffic, use the class discussion list
- Consultation times : Tuesday, Thursday 1645 to 1745 or by appointment

# Objectives

Overview of different paradigms of programming languages. Detailed studies in object-oriented, functional, and logic programming. Theoretical aspects of programming languages including basic language translation, virtual machines, abstraction mechanisms, declarations and types.

# Topics

- Week 1: Overview (1, a)
- Week 2: Grammars (1, a)
- Week 3,4: Functional programming (2, a, b, c, k)
- Week 5: Abstraction Mechanisms (1, a)
- Week 6: Declarations and Types (1, a)
- Week 7,8:Object-oriented programming (1, a, b, c)
- Week 9: Basic language translation (1, a, b)
- Week 10: Virtual machines (1, a, b)
- Week 11,12: Logic Programming (a, b, c, k)
- Week 13,14: special topics (a, k)

Note that all the case studies involve translating and executing a high-level specification, written as a variant of an attributed EBNF grammar. Hence, they all contribute to b, c

ACM curriculum:

- 1 core
- 2 elective A

LCSEE computer science program objectives:

- a Be exposed to a variety of programming languages and systems, and will be proficient in programming in at least two languages.
- b Have the knowledge of the basic principles and methods of programming language translation.
- c Have knowledge of the basic principles of data structures, discrete mathematics and algorithms, and be able to apply this knowledge to problem solving in relevant application areas.
- k Be familiar with advanced concepts of several specialized computer science areas.

# Expected Workload

You MUST be prepared to dedicate AT LEAST 5-8 working hours a week to this class (excluding the time spent in the classroom). A minimal prerequisite for the successful completion is good understanding of programming concepts. You should have gained these in the prerequisite class, CS 111. Familiarity with a high level programming language is assumed (as taught in CS 111). Laboratory instruction is not included in CS 310. You will be given class accounts on CS Department machines and all assignments will have to be submitted and run there. Please note that a Linux server can be accessed from any PC using a secure connection service, such as SSH (explanation to be provided in class).
All students will commit their work to an on-line repository, supplied by the lecturer.
This is a tools-based subject and it is required that students learn those tools (Ssh, Emacs, Subversion, LISP).

# Assessment

- Mid-term: 18 marks
- Final exam: 40 marks
- Three projects, 16 marks each.
    - These projects will be called 1,2,3
    - Each will have weekly deliverables a,b,c,d where a,b,c is worth 2 mark each and d is worth 10 marks.
    - Each project will end with a live demo in front of a tutor where groups will lose marks if:
        - The day before the demo, each student member did not fill out and email the group peer assessment form to the tutor.
        - Members do not attend,
        - or if the required functionality is not demonstrable,
        - or if they cannot explain randomly selected line of codes.

## Final Grades

- A : 90 - 100
- B : 80 - 89
- C : 70 - 79
- D : 60 - 69
- F : otherwise

See also, below, for how to lose marks due to poor attendance.

## Attendance Policy

*Lectures*: Students are expected to regularly attend lectures. After three noted absences, students will lose two points per absence. After three noted lated arrivals, students will lose one point per late arrival. If you have another commitment that requires you to be consistently late, you should drop the class.
*Exams*: Consistent with WVU guidelines, students absent from regularly scheduled examinations because of authorized University activities will have the opportunity to take them at an alternate time. Make-up exams for absences due to any other reason will be at the discretion of the instructor.

## Late Work

There are no late marks; i.e. late homeworks score zero marks.
Total student marks add up to 18+40+16*3 = 106.
That is, you can skip any 3 of the (a,b,c) homeworks and get full marks.
The wise student will hoard all their “skip” marks and use them only for sickness.
However, all students homeworks must be submitted prior to worked solutions being released. So if you are skipping you still have to hand in one sheet of paper saying "skipping"".

## Special Consideration

See me at start of semester advising planned absences or if you need other special considerations.

# Timetable

Homework due: weeks 2,3,4,5,6, then 8,9,10,11,12,13,14
Mid-session test: week 7
Final exams: as per university timetable.

# Social Justice Statement

West Virginia University is committed to social justice. I concur with that commitment and expect to foster a nurturing learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.
If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with Disability Services (293-6700).

# Statement of Academic Integrity

The integrity of the classes offered by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, I will enforce rigorous standards of academic integrity in all aspects and assignments of this course.
For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the Student Conduct Code at http://www.arc.wvu.edu/admissions/integrity.html. Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see me before the assignment is due to discuss the matter.