

# CSCI 3675: Organization of Programming Languages

## Fall 2013

Class Meeting	Monday, Wednesday, and Friday, 10:00am – 10:50am Austin 306
Instructor	Dr. Mark Hills
Office	Science & Technology Building, C-110
Office Hours	Monday & Wednesday 11:00am – 12:30pm Tuesday & Thursday 3:30pm – 4:30pm Or by appointment (please email me)
Phone	252-328-9692
Email	<a href="mailto:hillsma@ecu.edu">hillsma@ecu.edu</a> (responses within 24 hours)
Skype	mahills
Course web page	<a href="http://blackboard.ecu.edu">http://blackboard.ecu.edu</a>

### Course Summary

The catalog description for this course is as follows:

*Applied course in programming language constructs. Emphasis on run-time behavior of programs. Provides appropriate background for advanced-level courses involving formal and theoretical aspects of programming languages and compilation process.*

In this course we will cover a number of topics in the area of programming languages. We will look in depth at functional languages, explore programming language theory (lambda calculus, operational semantics), examine language processing tools and techniques (language front-ends, type checking, interpreters), and survey a number of areas of differentiation in programming languages, including naming, control flow, and concurrency.

### Prerequisites

Prerequisites for this course are CSCI 3200 (Data Structures and Their Applications) or CSCI 3310 (Advanced Data Structures and Data Abstraction). This also means you should have taken CSCI 2427 (Discrete Mathematical Structures). No other background is assumed. If you have not taken the prerequisite courses, please schedule time to meet with me to discuss your background and preparedness for this course.

## Learning Outcomes

After taking this course, you should be prepared to:

- compare different programming languages, selecting the best one for the task at hand;
- write programming language front-ends, a task becoming more common as languages are increasingly used in diverse areas such as modeling and application configuration;
- start exploring the current research literature in the programming languages field, such as the proceedings for conferences such as PLDI and OOPSLA;
- program effectively using functional languages, and understand how functional programs execute.

## Textbooks

There are no required textbooks for this course.

There are two recommended textbooks for the course. The first is *Programming Language Pragmatics* by Scott. The second is *Semantics with Applications: An Appetizer* by Nielson and Nielson. Both books should be available at the ECU Bookstore. I will be going over all the material from both books that we need in this course, but both are excellent books. The first is a survey of programming languages, while the second provides a good introduction to some of the formalisms that we will be discussing in class. Both books will also be available on reserve in the library.

I may also post links to a number of online resources and conference or journal publications as the course progresses. These will be available through the course Blackboard site, available at the link shown above.

## Exams

There will be two midterm exams given during the course, both in class during class time. The first will be on **September 30**, while the second will be on **October 30**. The class before each exam (September 27 and October 25, respectively) will be review sessions for the exams.

The final exam for the course will be on **Friday, December 6<sup>th</sup>**, from **8am – 10:30am**, in Austin 306 (our regular classroom). More details about the exam will be available closer to the exam date. The last regular day of class, Tuesday, December 3<sup>rd</sup>, will be used to review for the final.

## Grading

Students will be evaluated based on a combination of class activities, including 12 written homeworks and programming assignments (some of these twelve may involve both writing and programming) and three exam (two midterms and a final exam). The final grade will be assessed with the following criteria, with grades normalized to a 100 point scale:

Grading	
A	$\geq 94$
A-	90-93
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	below 60

This grade is based on the following relative weights of the various activities:

Weighting	
Homework	30%
Midterm 1	20%
Midterm 2	20%
Final Exam	30%

## Starfish

This course uses the Starfish system to provide you with information on your performance within the course. For more information, please see <http://www.ecu.edu/cs-acad/advising/upload/Starfish-Student-Getting-Started.pdf>.

## Student conduct

Smoking is not permitted in classrooms. Please turn off telephones while in class. Laptops and tablets can be used for taking notes, but should not be used for other work (or recreational browsing, playing games, etc).

Students are expected to abide by the university's Student Honor Code. The homework that you do is a critical part of your education. Each student is expected to do his or her own work, except where teamwork is explicitly allowed or required. That does not mean you are not allowed to discuss your ideas with

other students. Working in groups can be beneficial, and I encourage you to talk through ideas with other students. But outright copying is plagiarism and is unacceptable. Students who copy other students' work, or who allow their work to be copied, or who copy their work from other sources, such as the internet, are violating the ECU academic integrity policy.

Other potential academic integrity violations are cheating, falsification, multiple submissions of the same work in different classes, and attempts at any of these violations. Please see [http://www.ecu.edu/cs-studentlife/policyhub/academic\\_integrity.cfm](http://www.ecu.edu/cs-studentlife/policyhub/academic_integrity.cfm) for more details.

Academic integrity violations can result in a grade penalty up to and including an F for the course.

## **Other Policies**

No incompletes will be issued in this course except for extraordinary circumstances, and even then only if you are nearly done already, and have done work of acceptable quality, so that it is realistic that you can pass the course.

All homework should be handed in by the start of class (10am) on the day it is due. All homeworks will receive an automatic 48 hour extension, but questions about the homework will not be answered during the extension period, so ask in advance! Extensions will also be granted for documented medical emergencies (i.e., not for regular medical checkups or other non-emergency visits). Otherwise, homework will not be accepted after the above-mentioned automatic 48 hour extension.

If you know you will miss an exam, please contact me as soon as possible. You will have to take a makeup exam. This exam must be taken within 48 hours (on either side) of the scheduled exam, so I can get the exams graded in a timely fashion and grades returned. If this is the final exam, the makeup period will be determined based on the exam schedules of those that need to reschedule the exam.

There is no official attendance policy for the class. In my experience, success in the class is directly correlated with class attendance, so I highly recommend that you attend and actively participate. If you miss a class, it is your responsibility to get notes from other attendees and review the lecture slides.

## **Weather emergencies**

In the event of a weather emergency, information about ECU can be obtained through the following sources:

**ECU emergency notices** <http://www.ecu.edu/alert>  
**ECU emergency information hotline** 252-328-0062

## Students with disabilities

East Carolina University seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Department for Disability Support Services located in Slay 138 ((252) 737-1016 (Voice/TTY)).

For more information, please see <http://www.ecu.edu/cs-studentlife/dss/>.

## Retention Requirements

Academic requirements for retention have changed. Please be aware of the following new GPA requirements. Please discuss the retention requirements, entrance to major requirements, and your goals with your academic advisor.

GPA Hours at ECU (identified in Transcript in Banner Self Service) <b>plus</b> transferred credit hours	"Old" Retention Requirement All courses taken at ECU	New Retention Requirements Effective with Fall 2011 grades All courses taken at ECU
1-29 semester hours	1.6 GPA	1.8
30-59 semester hours	1.8 GPA	1.9
60-74 semester hours	1.9 GPA	2.0
75 or more semester hours	2.0 GPA	2.0

## Caveats

Occasionally, it may be necessary to revise this syllabus due to extenuating circumstances. I reserve the right to revise this syllabus if the need arises. If I do so, I will provide you with advance notice.