Computer Science 4785/5785 - Compiler Construction

SYLLABUS

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<th>Semester</th>
<th>Fall 2017</th>
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| Meeting      | • Time: T-R 8:10 – 9:25 PM  
• Place: EN 4059 |
| Instructor   | Dr. Kim Buckner |
| Office       | EN 4089 |
| Office Hours | • Monday and Wednesday, 10:00-12:00  
• Tuesday and Thursday, 1:00-2:00  
• Other times are available by appointment |
| Contact      | • Email: kbuckner@uwyo.edu  
• Office Phone: 307-766-5182 |

Course Description: Theory and implementation of interpreters and compilers. Compiler topics include lexical analysis, top-down and bottom-up parsing methods, symbol tables, and code generation from a block-structured language with recursion and parameters. Project uses compiler writing tools.

Prerequisites: COSC 3020

Objectives: Upon completion of the students should be able to:

- Discuss the standard components of a compiler and their organization.
- Demonstrate an understanding of the concepts used for lexical analysis.
- Demonstrate an understanding of the concepts used for syntax analysis.
- Use software tools for lexical and syntax analysis.
- Demonstrate an understanding of how basic code generation is performed.

Course Policies:

• Grading:
  – A 90% - 100%
  – B 80% - 89%
  – C 70% - 79%
  – D 60% - 69%
  – F Below 60%

• Percent of Grade:
  – Homework and programming: 70%
  – Exams: 20%
  – Final Exam: 10%

Homework and Programming: Each homework and programming assignment will have a due date and time assigned. Any late assignment will be assessed a 5% (five percent) per day late penalty up to 3 days. The ”days” are 24 hour periods starting immediately after the assigned due date and time. If the homework is turned in within the first 24 hours, it will be 1 day late and so on. No homework will be accepted more than 3 days late and will be given a 0 (zero) grade.

Assignments will be managed through WyoCourses. The method of submitting assignments will be specified when assigned. Failure to comply with the assigned submission method will result in a 0 (zero) grade for the assignment.

Graduate students will have additional requirements on programming and homework assignments (depending on the assignment) and will have separate exams. Graduate students will be expected to show that they have a more in-depth understanding of the subject than undergraduate students.

Academic Honesty: Assignments are intended to be completed independently unless otherwise specified by the instructor. UW Regulation 6-802 defines academic dishonesty and specifies the penalties (see Office of the General Counsel’s webpage and select Current Regulations and Presidential Directives for the content of all the University regulations)

Collaboration and discussion are acceptable, but you MUST do your own work. The grade you receive must represent your effort and achievement not that of others. Anything else is unfair to you and to your fellow students.

Attendance: Attendance at the lecture is highly recommended as not all material will come from the texts. (see further UW Regulation 6-713)
**Students with disabilities:** If you have a physical, sensory, or psychological disability and require accommodations, please let me know as soon as possible. You will need to register with, and possibly provide documentation of your disability to, Disability Support Services (DSS), room 109 Knight Hall. You may also contact DSS at (307) 766-3073 or udss@uwyo.edu. Visit their website for more information: [www.uwyo.edu/udss](http://www.uwyo.edu/udss).

**Other Information:** The use of cell phones, pagers, and other devices that beep, ring, etc. is prohibited in class. They must be turned off or set to “silent.” Text messaging is extremely distracting to the instructor so please wait until after class to reply to or check your messages.

WyoCourses will be an integral part of the class. You are free to customize your notifications but please check whatever regularly. Course information may be distributed by email and you will be held responsible for any such information. It may also be distributed by WyoCourses announcement. The course site will maintain the most current copy of this syllabus, the homework assignments and projects, and a gradebook. The gradebook will only have the grades for assignments, exams, and attendance.

**Basic Course Schedule:** The academic calendar that can be accessed from WyoWeb, shows ‘important’ dates. The ones that most concern us are:

- August 30, First day of classes
- October 25, Midterm Grades due
- November 22-24, Thanksgiving break
- December 11, Last day of classes
- December 15, Final Exam, 8:00 AM – 10:00 AM
- December 15-16, Commencement

**Topics to be covered:**

- General overview of compilers and interpreters
- Languages and state machines
- Syntax and syntactic analysis
- Semantics and semantic analysis
- Type checking
- Code generation
Notes:

- The exams for this course will be "comprehensive" in that you will be responsible for all of the course material assigned, discussed, or covered in any way from the first day of the course up until the start of the exam. There will be two “in-class” exams and the final exam.

- Exam questions will be of either the short answer or essay type. If you have any question about what that means in terms how you should answer, please ask me.

- Office hours are kept for the benefit of the students. They are intended to be set times when the instructor is available in his office to answer questions, discuss course material and provide help. If I will not be available for office hours, you will be notified as much in advance as possible. There are times when this may be a sticky note on my door. I am normally here at the University from 0800 to 1430 Monday through Friday. I do have other classes. If you wish to come by outside of scheduled hours, please feel free. I will not guarantee that I can talk to you but we can make arrangements for some other time when I am available. You can also phone or email.

- I do not often read email between 1600 and 0800 Monday through Thursday or after 1600 Friday and before 0800 Monday. I do have my machine on all the time I am in the office and unless I get absorbed in something, I read and answer my email all day. But, do not plan on an immediate answer. I will read and answer as fast as I can but there are no guarantees I even remember what time it is let alone when the last time I checked my email was.

This Syllabus: This document is subject to change. Any changes will be communicated to the students in a timely manner. No changes involving grading will affect assignments already given at the time of the change. No changes in assignment due dates will affect current assignments if such change causes the assignment to be due earlier than originally indicated.

Last Update: August 18, 2017