COSC 5353 Compiler Design and Construction  
School of Engineering and Computing Sciences  
Spring 2015

A. COURSE INFORMATION

Course number/section: COSC 5353 – Section 001  
Class meeting time: MW 2:00 – 3:15 PM  
Class location: CA 228  
Course Website: https://bb9.tamucc.edu/

B. INSTRUCTOR INFORMATION

Instructor: Dr. Ping Guo  
Office location: EN 314G  
Office hours: MW 3:30-5:00 PM, T 02:00-4:00 PM or by appointment  
Telephone: (361)825-3831  
e-mail: Ping.Guo@tamucc.edu  
Appointments: By email

C. COURSE DESCRIPTION

This course introduces the basic concepts and mechanisms traditionally employed in language translators, with emphasis on compilers. Topics include strategies for syntactic and semantic analysis, techniques of code optimization and approaches toward code generation.

D. PREREQUISITES AND COREQUISITES

Prerequisites  
MATH 2305 (Discrete Mathematics)

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)  

Optional Textbook(s) or Other References  
F. **STUDENT LEARNING OUTCOMES AND ASSESSMENT**

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

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

G. **INSTRUCTIONAL METHODS AND ACTIVITIES**

This is a graduate-level core course. Students are expected to attend all classes. Regular completion of all homework/project assignments on time are essential for success in this course. Please note that this course has heavy workload on programming. Students will have good opportunity to enhance their programming skills and understand related knowledge in textbook via well-designed projects.

H. **MAJOR COURSE REQUIREMENTS AND GRADING**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Class Attendance</td>
<td>5</td>
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<tr>
<td>Homework and Projects</td>
<td>40</td>
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<tr>
<td>Midterm Exam I</td>
<td>15</td>
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<tr>
<td>Midterm Exam II</td>
<td>15</td>
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<td>Final Exam</td>
<td>25</td>
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**Class Attendance:** Students are expected to attend all classes. Attendance will count towards part of students’ final grades.

**Homework and Project Assignments:** There will be 6-8 homework/project assignments.

**Exams:** Two in-class midterm exams and one comprehensive final exam will be given. Please note the dates of the exams on the course schedule below and plan accordingly.
I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>DATE (BY DAY OR WEEK)</th>
<th>TOPIC</th>
<th>CHAPTER(S)</th>
<th>ASSIGNMENTS</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Course Overview Introduction</td>
<td></td>
<td>TBA</td>
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<tr>
<td>Week 2</td>
<td>Introduction</td>
<td></td>
<td>TBA</td>
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<tr>
<td></td>
<td>Lexical Analysis</td>
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<td>Week 3</td>
<td>Lexical Analysis</td>
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<td>TBA</td>
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<tr>
<td>Week 4</td>
<td>Lexical Analysis</td>
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<td>TBA</td>
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<tr>
<td>Week 5</td>
<td>Syntax Analysis</td>
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<td>TBA</td>
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<td>Midterm Review 1</td>
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<td>Week 6</td>
<td><strong>Midterm Exam 1</strong></td>
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<td>TBA</td>
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<td></td>
<td>Syntax Analysis</td>
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<tr>
<td>Week 7</td>
<td>Syntax Analysis</td>
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<td>TBA</td>
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<tr>
<td>Week 8</td>
<td>Syntax Analysis</td>
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<td>TBA</td>
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<tr>
<td>Week 9</td>
<td>Spring Break</td>
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<td>Week 10</td>
<td>Midterm Review 2</td>
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<tr>
<td></td>
<td><strong>Midterm Exam 2</strong></td>
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</tbody>
</table>
Week 11  Syntax-directed Translation  TBA  
Week 12  Syntax-directed Translation  TBA  
Week 13  Intermediate Code Generation  TBA  
Week 14  Run-Time Environments  TBA  
Week 15  Code Generation and Optimization  TBA  
Week 16  Final Review  Final Exam  

Note: The class schedule is tentative. Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

- Attendance/Tardiness
  Students are expected to attend all classes. Attendance will count towards part of students’ final grades. Students are responsible for any materials covered and announcements made in their absence.

- Late Work and Make-up Exams
  There is a penalty for late homework/projects submissions. No Make-up Exams will be arranged after each exam without a University Excused Absence.

- Academic Honesty Policy
  All work submitted for grading must be the student's own work. Plagiarism will result in a score of 0 (zero) for the work or dismissal from the course and the Dean of Students office will be notified. No copying from another student's work of any type is allowed. It is the student's duty to allow no one to copy his or her work. Anyone found cheating
and/or copying, in the exams or assignments, in the instructor's opinion, may receive an automatic F for the course.

- **Cell Phone/Laptop Use**
  Please refrain from the use of electronic devices during class, as it is distracting to not only you, but also to your instructor and peers. Please silence your phones during class. Laptops will be permitted for particular activities as deemed appropriate.

**K. COLLEGE AND UNIVERSITY POLICIES**

- **Academic Integrity (University)**
  It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior. See Full University Policy at [http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity](http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity)

- **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course by Friday, April 10, 2015. No student is eligible to receive a W without completing the official drop process by this deadline. Visit the Office of the University Registrar for the Course Drop Form that must submitted. After April 10, 2015 a student will not be allowed to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure
13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  Disability Services (DS) is the hub for coordinating services and accommodations to ensure accessibility and utilization of all programs for all Texas A&M University-Corpus Christi students with disabilities. Our services are designed to meet the unique educational needs of enrolled students with documented permanent or temporary disabilities. DS provides intake and consultation services to students seeking to register with our office. DS reviews an individual’s documentation of disability and assesses eligibility for services and the determination of reasonable accommodations. For more information visit the Disability Services Office at 116 Corpus Christi Hall or go to [http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

**GENERAL DISCLAIMER**

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.