Course Syllabus

Course Information
(course number, course title, term, any specific section title)

Course Prefix, Number, Section
CS 4337.501
CE 4337.501

Course Title
CS 4337 - Organization of Programming Languages

Term
Fall 2017

Professor Contact Information
(Professor's name, phone number, email, office location, office hours, other information)

Name: Richard Min
Office Telephone: 972-883-4522
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Office: ECSS 4.609
Office Hours: MW1-2:30pm, 3:45-5:30pm; TTh11:15-1:15pm (or by appointment)

Course Pre-requisites, Co-requisites, and/or Other Restrictions
(including required prior knowledge or skills)
CE 2336 or CS 2336 or TE 2336) with a grade of C or better or CS 3333) and (CE 2305 or CS 2305 or TE 2305) with a grade of C or better and (CS 3340 or SE 3340 or TE 3340 or CE 4304 or EE 4304).

Course Description
CS 4337 - Organization of Programming Languages (3 semester credit hours) Principles of design and implementation of contemporary programming languages. Formal description including specification of syntax and semantics of programming languages. Language definition structures including binding, scoping, data types, control structures, parameter passing, abstraction mechanism, and run-time considerations. Design issues of imperative languages, object-oriented languages, functional languages and logic languages. Design, implement, and debug programs in various programming language paradigms. (Same as CE 4337) (3-0) S

Student Learning Objectives/Outcomes
After successful completion of this course, the student should be able to:
1. Ability to identify the characteristics of programming paradigms and phases of translation
2. Ability to understand the importance of formal syntax and semantics
3. Ability to understand the different forms of binding, visibility, scoping, and lifetime
4. Ability to understand the semantics of expressions and data types
5. Ability to understand the concepts of data abstraction, control abstraction and various parameter passing

mechanisms
6. Understanding of the concepts of encapsulation, information hiding, inheritance, and polymorphism
7. Ability to understand the concepts of first class values, lists and recursion
8. Ability to understand the concepts of the functional programming paradigm and logic programming paradigm
9. Ability to design programs using the functional programming paradigm
10. Ability to design programs using the logic programming paradigm

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Required Textbooks and Materials

Required Textbooks

1. Concepts of Programming Languages, 11th Edition, Robert Sebesta.
   Addison Wesley, © 2013. ISBN-13: 978-0133943023 ISBN-10: 013394302X

2. Learning PHP, MySQL & JavaScript, 4th Edition, Robin Nixon. © 2014 O'Reilly Media, Inc.
   (Available online free via UTD ebook => Safari)

3. Introducing Python. Bill Lubanovic. © 2014 O'Reilly Media, Inc. ISBN-13: 978-1-4493-5936-2
   (Available online & free via UTD Library => eBook => Safari)

4. flex & bison. John Levine. © 2009 O'Reilly Media, Inc. ISBN 9780596805418
   (Available online & free via UTD Library => eBook => Safari) This book is referred as [**FlexBison**].

5. Learning PHP, MySQL & JavaScript, 4th ed. By Robin Nixon. © 2014 O'Reilly Media, Inc. ISBN-13: 978-1-4919-1866-1

Required Materials

- UTD Library ebook => Safari - to find many online books there and free of charge for this course related materials. **(The following books are available online via UTD Library Safari)**
  - Paradigms of Artificial Intelligence Programming. Peter Norvig. © 2014 Morgan Kaufmann. ISBN-13: 978-1-55860-191-8. (for Common Lisp Programming)
  - Common Lisp Recipes: A Problem-Solution Approach. Edmund Weitz. © 2016 Apress. ISBN-13: 978-1-4842-1177-9
  - Introducing Python. Bill Lubanovic. © 2014 O'Reilly Media, Inc. ISBN-13: 978-1-4493-5936-2
  - Knowledge Representation, Reasoning, and the Design of Intelligent Agents. Michael Gelfond; Yulia Kahl. © 2014 Cambridge University Press. ISBN: 978-1-107-02956-9
- LISP. Common Lisp. http://www.clisp.org/
- Lisp book and tutorial online
  http://www.cs.cmu.edu/~dst/LispBook/
  http://cs.gmu.edu/~sean/lisp/LispTutorial.html
- SCHEME: http://www.drscheme.org/ Tutorial http://www.scheme.com/tspl2d/
- SML of New Jersey: http://www.smlnj.org/ Tutorials: http://www.smlnj.org/doc/literature.html#tutorials
- Elements of ML Programming, ML97 Edition, 2/E Jeffrey D. Ullman, Stanford University © 1998
- PROLOG: http://www.swi-prolog.org/ Tutorials: http://www.swi-prolog.org/
- Logic, Programming and Prolog (2ed) by Ulf Nilsson and Jan Maluszynski
  http://www.ida.liu.se/~ulfni53/lpp/ and Prolog tutorial by Dr. Fisher.
  http://homepage.cs.uri.edu/~thenry/resources/prolog_tutorial/pt_framer.html

- Python - https://www.python.org/
- PHP – http://php.net/
- HTML, CSS, JavaScript, PHP tutorials - https://www.w3schools.com/

- Javascript - http://www.w3schools.com/js/
- Xampp – https://www.apachefriends.org/index.html
- JFLAP - http://www.jflap.org/
- Answer Set Programming (lparse and smodels). http://www.tcs.hut.fi/Software/smodels/
- ASP (gringo and clasp for Windows, Mac or Linux). http://potassco.org/clasp

Suggested Course Materials
See Required Materials

Assignments & Academic Calendar
(Topics, Reading Assignments, Due Dates, Exam Dates)

Fall 2017 Schedule/Plan*

* Note: The dates and the topics are subject to change as needed.

Week	Sebesta Chapter	Other Topic	Examination	Assignment
01 – 08/21 M	Sebesta ch1	Syllabus, Introduction		
02 – 08/28 M	Sebesta ch2	Lisp		
03 – 09/04 M	Sebesta ch3	JFLAP		
04 – 09/11 M		flex & bison		(1) 9/11 M Noon
05 – 09/18 M	Sebesta ch4		Test1 9/22 F	
06 – 09/25 M		Prolog		
07 – 10/02 M	Sebesta ch5			
08 – 10/09 M	Sebesta ch6			(2) 10/09 M Noon
09 – 10/16 M	Sebesta ch7	Advanced Topics (as time		
10 – 10/23 M	Sebesta ch8	permits) PHP, MySQL,	Test2 10/27 F	
11 – 10/30 M	Sebesta ch9-10	Javascript, Python, ASP		
12 – 11/06 M	Sebesta ch11			(3) 11/06 M Noon
13 – 11/13 M	Sebesta ch12			
14 – 11/20 M	**Fall Break**			
15 – 11/27 M	Adv. Topics		Test3 11/29 W	
16 – 12/04 M	Last Week			(4) 12/04 M Noon
17 – 12/11 M	Final Exam Week	Grade Due 12/21	TBA	

* Note: The dates here are tentatively assigned and are subject to change as needed.

60% for 3 Tests. 20% for each 2-hour test. Tentatively scheduled at Testing Center. Each test will be taken at Testing Center (Student Assessment Center, McDermott Library 1st floor) for 2-hour examination. Time of Test will be announced later in elearning. Each student should make a seat reservation prior to each test. All exams are closed book and closed notes. Exams will focus more on concepts and less on details. Necessary documentation will be provided to avoid the need for memorization as much as possible. We will likely take all the tests in the testing center as scheduled. You can expect to see a few coding/analysis questions, a few short answer questions and a few multiple-choice questions in each test. Instructor is responsible for grading all the tests.

Any make-up tests will be scheduled during the same week (usually Tuesdays prior to the actual test date) at the discretion of the instructor. There should be a valid reason for scheduling make-up tests & they need to be coordinated with the instructor, 1-2 weeks prior to the test date except for serious medical condition (with Doctor's or Hospital's certificate will be required as a valid proof.) **Without a valid reason, any late makeup test scheduled after the regular test date will be subject to 15% penalty.** It is unlikely that curving will be used to boost the final grades. If the instructor decides to do it, only the test scores will be boosted, but the tests'

contribution will be clipped at 60%. In other words, curving will NOT make up for the points lost in all other assignments. So, it is extremely important to complete them in timely manner.

20% for 4 Assignments, contributing 5% each. Due (Monday 12pm Noon). You can ask for clarifications and help in the weekly forum. If you need help with your code, it is ok to post 1 or 2 lines of code, but do not post your full program - email it to TA or professor instead. You are expected to start working on them as soon as they are posted. Do not expect us to rescue you on the day of submission. I encourage everyone to submit the projects 1 or 2 days early. You can upload it again but the last submission will be graded. [Do not wait until the last minute to submit it. I do understand things happen and occasionally as you may not be able to submit projects on time.] The Late Penalty policy is to assess 1% penalty for every 1 hours. For example, if you submit the projects exactly 1 day later, 24% penalty will be assessed. Late projects will be accepted up to 3 days and thereafter 0. You won't be able to submit it after 3 days and your project grade will be set to 0. My advice is to submit whatever you have done (your best effort) before/by the due, to seek for any further discretion and/or consideration. All these assignments/projects should be done in Linux and you will hand-in your projects directly in Linux. We will NOT use elearning to submit the projects, but your grades and TA's comments will be recorded there - you can click on My Grades to access them. More details on Assignment & Submission steps will be given with eLearning.

Warning. To get A- or above (in letter grade), student should complete and submit all the assignments and get over 60% for each assignment. To get B- or above, student should complete and submit at least 75% of the assignments, and get over 40% or more for each assignment.

An instructor who believes a student has committed an act of **plagiarism** should take appropriate action, which includes the issuing of a "penalty grade" (that is, F for the course) for academic dishonesty. For any "minor" plagiarism charge, the maximum letter grade for the course would be B+ or lower.

20% for Weekly Activity & Quiz (including online quiz) will be posted by Monday & will be due Saturday midnight (11:59pm) every week. It will be a small programming exercise or tryout (e.g., to write and run a simple "Hello world" program, to try Linux commands or sample programs provided, to install a tool to try it) in most weeks. It can also be a quiz (online and open-book) or some other meaningful activity as well. It will vary every week. Each weekly activity and its score may vary case by case. Late submissions are NOT accepted for weekly activities and quizzes. Note: Weekly quiz will provide a good snapshot, an excellent opportunity to review, and for a preparation for each test. Late submissions are NOT accepted for weekly activity or quiz. **Weekly Postings. 2** meaningful and relevant posts are required every week in weekly discussion forums. This is extremely crucial component of a true online course. No non-sense and no trivial comment. One-liners saying "Thanks!" ("Weather is bad" or "I got it" or "I do not know" or "very good" etc.) will not be counted as a valid posting or participation. Keep your posting very relevant and valuable to you and your classmates, and to the course work and activity of the week. Your post can be a good question, meaningful response to another student's question, interesting observation, etc. For a question, you should do your own homework for your question and share your findings. If you use an external source, you should provide a reference or a link of the source, and provide a good overview or summary in your wording. Do not post any offending or destructive content. Do not post any overwhelming contents (e.g., to copy and paste big image or images, or very long text content, or using "big" fonts) but you should attach a file as you need. In simple words, each post should value to the course. Instructor (TA or Grader) will grade the weekly forum and determine the value of each post - instructor's decision is final. First post should be submitted latest by Wednesday midnight and 2nd post should be completed latest by Saturday midnight, otherwise respective posts won't receive any grade. It is possible for someone to be a silent observer in on-ground course and still manage to get the final grade of A. It is impossible to do it in online course. Reasonable progress towards the expected answer or learning will get 1 point & perfect or near-perfect submissions will get 2 points. Late submissions are NOT accepted for weekly posts.

The following Table is for Weekly Activity (See the detail for elearning).

Grading Policy
(including percentages for assignments, grade scale, etc.)

Letter grades will be assigned as follows:

97-100	A+	93-96	A	90-92	A-
87-89	B+	83-86	B	80-82	B-
77-79	C+	73-76	C	70-72	C-
67-69	D+	63-66	D	60-62	D-
Below 60	F				

Note: The range shown above is inclusive and without any rounding-off. For example, 93-97 for grade A is for the score falling in the range between 93.000 and 97.999. The grade of 92.999 is for A-.

Note: "Running" and weighted total in your gradebook shows the current weighted grade based on your graded work only based on what you have submitted. For example, if you have done only Test1, Assignment1, Weekly postings so far (but you have missed Test2 and missed Assignment2 totally), current total grade will be based on only those entries that you have submitted and done.

Grading Criteria	Weekly Activity, Quiz, Posting 20% 4 Assignments (5% x 4) 20% 3 Tests (20 % x 3) 60%	A+ = 97 & above A = 93-96 A– = 90-92 B+ = 87-89 B = 83-86 B– = 80-82 C+ = 77-79 C = 73-76 C– = 70-72 F = below 70
Make-up Exams	Not allowed (or 20% penalty)	
Late Work	Late submission or makeup is not allowed. (If imposed, there will be 20% reduction in grade per day [prorated] for any late submission of Assignment, and for maximum 3 days.)	
Class Attendance	Required; Attendance will be taken	
Classroom Citizenship	Respect for your classmates is necessary at all times	
All other policies	Please visit http://go.utdallas.edu/syllabus-policies for other policies	

Course & Instructor Policies
(make-up exams, extra credit, late work, special assignments, class attendance, classroom citizenship, etc.)

Instructor is responsible for grading all the tests & weekly participation. TA will be responsible for grading projects and weekly assignments. So, contact the TA directly for any grading related discrepancies for programs. It is not possible to give a detailed feedback for each project/weekly assignment/test question due to large # of students in our classes. If you need more details/clarification, you are encouraged to meet the TA/instructor during office hours & get personal attention. Do not rely on email alone to get the full response. If you are stuck with your assignment, it is better to turn in what you have and send us email. We will revise your submission and give some guidance. Your next submission will override the previous submission - TA will always grade the latest submission for each project. You can use email to get help for weekly assignments. Include the detailed

problem description & applicable error messages, zip all your source files and include it with your email too. Do not just say "my program does not work" and expect us to figure out everything - you need to help us to help you efficiently. We expect to complete grading assignments (projects), weekly activities or quizzes, and tests in a week or so. However, when the schedule gets too busy, it can be as long as 2 weeks before the grades are assigned. It is the students' responsibility to review the grade details when they become available and follow up for clarifications if needed.

Attendance. For in-class course (and elearning weekly activity & participation via elearning for online course), Attendance Rule & Policy: Please note that if you miss any lectures beyond the 1st week, then automatic actions kick in: (1) Missing the next lecture in the 2nd week will result in an automatic drop of one grade from your final course grade. (2) Missing the entire 2nd week of lecture(s) is an automatic F in the course. So if you are going to miss more than one week of classes (ideally, you should not miss any lecture, but sometimes people switch courses during the first week), then you should not be in the course and you should drop out. Further you should plan to be here for Final Examination Week, as it will be scheduled for this course.

Off-campus Instruction and Course Activities

Below is a description of any travel and/or risk-related activity associated with this course.

Each student should plan to take 3 Tests at Testing Center, and demo for Assignments, or to arrange off-site proctoring service for Tests with Testing Center.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.