

Logical Foundations of Computer Science

CS5303 Spring 2018 – Syllabus

General information.

Instructor: Dr. Martine Ceberio

Office: CCSB 3.0406

Office hours: T noon – 1:20 pm + R 10:30 to noon + by appointment + open-door policy

Lecture times: MW 1:30 pm – 2:50 pm

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Website: piazza.com/utep/spring2018/cs5303/home

Recommended readings.

1. Logic in Computer Science: Modelling and Reasoning about Systems, by Michael Huth and Mark Ryan, 2004
2. Introduction to Mathematical Logic, by Elliott Mendelson, Fifth Edition, CRC Press.
3. Mathematical Logic for Computer Science (Series in Computer Science), by Lu Zhongwan, 1999
4. Sets, Logic and Maths for Computing (Undergraduate Topics in Computer Science), by David Makinson
5. The Nuts and Bolts of Proofs, Third Edition: An Introduction to Mathematical Proofs, by Antonella Cupillari
6. How to prove it: a structured approach, by Daniel Velleman

Articles will also be provided to students as additional reading and, at some point, as an assignment: analysis and presenting the material described in the article to the rest of the class.

Brief course description.

This course provides a review of the fundamental logical tools required in advanced computer science including topics such as propositional and first-order logic, proofs, program verification.

Learning objectives.

The objective of this course is for students to become aware of the importance of logical components and proofs in the solutions they design to common problems.

By the end of the semester, the students will be able to understand how logic and proofs can help them design better solutions to their problems. They will have become more knowledgeable about program verification and proofs of their solutions. They will also have gained experience in logic programming (prolog and related programming languages) through the work spent working on their individual projects.

Examinations.

There will be two examinations, including one midterm exam and one comprehensive final. All exams will cover the lecture notes and assigned/directed reading, and class discussion. It is important that students take the exams at the assigned time. If an exam must be missed, the instructor should be contacted **prior** to the class period. Make-up exams must be completed within one week. After the exam is returned to you graded, if you have questions about the grading, you have one week to ask for it to be revised.

In addition, there will be unannounced quizzes and some homework during the semester. There will be no make-up quizzes.

Tentative dates for examinations:

- Mid-term examination: Tuesday March, 7th
- Final examination: first week of May – *typically held before the week of finals as the 3 hours scheduled for final exam will be used for project presentations*

Extra-credit: There might be some extra credit in each exam as well as some extra-credit quizzes or assignments over the course of the semester. However, no request for extra credit will be granted after week 12.

Major assignments.

During the semester, you will have to work on a project. Project topics will be decided during the first weeks of classes, and no later than the end of week 3, and you will then work on your own project until the end of the semester.

The project is to be done individually and will consist of some problem to study, for which a solution, involving logical components, will be implemented. Project topics may be chosen in concert with the student’s research advisor if applicable and relevant.

Over the course of the semester, you will have to turn in several deliverables related to your project, including: an article summary (as related to your project), a state-of-the-art in the area of your project as it relates to logic, a report outline.

Note: out of courtesy to your instructor, all written homework assignments should be typed and free of typos (as much as possible: for instance, turning in a document that is all underlined in red – if an office document – or full of errors anyway is not acceptable and will be returned without comment or grade).

Class participation.

Active participation is expected in this class. A total of 5% of your final grade are allocated to participation, which will be graded based on:

- Attendance
- General attitude, including arriving and leaving on time
- Your contribution to class discussions and exercises
- Completion of assigned homework on time.

Determining grades.

Grading scale for examinations and course work:

A	90% to 100%
B	80% to 89%
C	70% to 79%
D	60% to 69%
F	below 59%

Final grades will be based on the following:

Mid-term examination	20%
Comprehensive final	25%
Deliverables related to project	15%
Final project	20%
Quizzes and homework	15%
Class participation	5%

Important passing condition: Regardless of your overall average grade at the end of the semester, failing the comprehensive final (with a D or an F) will result in your failing the class. The same goes for your project: failing the project (with a D or an F) or failing to turn it in (on time or at all) will result in your failing the course.

Attendance.

Class attendance and participation is vital. Information will be shared in the class sessions that will help the

students work on their projects and succeed in their exams. Excessive absences will have an adverse effect on a student's final grade. If you need to be absent, you are allowed to two personal days: the instructor needs to be informed about your absence before it happens. More than two absences will be considered excessive and will result in loss of participation points.

Special Accommodations: If you have a disability and need classroom accommodations, please contact the Center for Accommodations and Support Services (CASS) at 747-5148 or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass. CASS' staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.

Scholastic Dishonesty: Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but not limited to cheating, plagiarism, collusion, and submission for credit of any work or materials that are attributable to another person.

Cheating is:

- Copying from the test paper of another student
- Communicating with another student during a test to be taken individually
- Giving or seeking aid from another student during a test to be taken individually
- Possession and/or use of unauthorized materials during tests (i.e. crib notes, class notes, books, etc.)
- Substituting for another person to take a test
- Falsifying research data, reports, academic work offered for credit
- Using someone's work in your assignments without the proper citations
- Submitting the same paper or assignment from a different course, without direct permission of instructors

Plagiarism is:

- Using someone's work in your assignments without the proper citations
- Submitting the same paper or assignment from a different course, without direct permission of instructors

To avoid plagiarism, see:

<http://sa.utep.edu/osccr/wp-content/uploads/sites/8/2012/09/Avoiding-Plagiarism.pdf>

Collusion is: Unauthorized collaboration with another person in preparing academic assignments.

Important! When in doubt on any of the above, please contact your instructor to check if you are following authorized procedure. Also, please check the UTEP's Handbook of Operating Procedures at: <https://admin.utep.edu/Default.aspx?tabid=73922>.

Classroom policies and conduct.

- You are expected to be on time. Do not come to class late or leave early as this unfairly disrupts your classmates. Arriving late or leaving early will also have an adverse effect on your success in the class as

you are likely to miss quizzes (for which no make-up will be provided), miss important information that you will be responsible to get back on your own. There will be no repetition of courses for students who arrive late or leave early.

- You are expected to spend the whole class period in class: please attend the rest room or any other need before the class. Exceptions should be approved before the class period starts.
- You are expected to do your class work and come prepared to class. Homework and any assignments will be due at the beginning of the class period. Failing to turn in assignments on time will result in points off.

Late work.

Any assignment turned in after the class in which it is due starts will be considered late. Quizzes (possibly unannounced) will often be given at the beginning of the class period. There will be no extra time for students who arrive late in class. Major assignments will be penalized by one letter grade per day that it is late (starting the first day after the class starts). There will be no exception to this rule.

Communication.

It is extremely important that all students understand that they should seek help or let the instructor know about special circumstances as soon as they arise. This way, if any special treatment or advice is necessary, the chances to resolve a problem are higher.

I have read the syllabus and all rules it includes. I understand them all and commit to follow them.

NAME (print):

Date:

Signature:
