22C:131 Limits of Computation
Syllabus

Instructor: Teodor Rus
Office : 201J MLH, Phone 335-0742
Class hours: MWF 10:30–11:20am, 210 MLH
Office hours: MWF 1:30pm–2:30pm, 201J MLH

Note: This course is given by the College of Liberal Arts and Sciences. This means that class policies on matters such as requirements, grading, and sanctions for academic dishonesty are governed by the College of Liberal Arts and Sciences. Students wishing to add or drop this course after the official deadline must receive the approval of the Dean of the College of Liberal Arts and Sciences. Details of the University policy of cross enrollments may be found at: http://www.uiowa.edu/ provost/deos/crossenroll.doc

Instructor's note: Copying material from any source and using it without citation as one's self work is an academic dishonesty and, depending on its gravity, can be subject of a penalty within a range of punishments from zero credit for the copied work until exclusion from the program.

1 Methodology

The course 22C:131, Limits of Computation, is a required class to both graduates and undergraduates students in the Department of Computer Science, The University of Iowa. Therefore, I will direct this offering of Limits of Computation such that it will be acceptable and useful for undergraduates, acceptable and complete for graduates, and funny for both. We will cover all the material specified in the course description. Click on "Topics to be covered" on course website `http://www.cs.uiowa.edu/~rus/Courses/Theory/index.html` to see the intended topics and their structure in my offering of this class.

The teaching methodology will be based on:

1. Class lecturing by the instructor, three times per week. I plan on keeping the following structure of every lecture:
   - Informal presentation of the topic of interest
   - Formalizing the topic of interest
   - Illustrating the topic of interest by in-class problem solving
2. Office hours (held by the instructor and TA).
3. One midterm in-class exam, covering material not yet tested up to the exam day. The midterm is an in-class exam scheduled for Wednesday 21 October 2009.

4. One final exam that is comprehensive and is scheduled on 9:45–11:45am on Wednesday 16 December 2009.

2 Textbooks

I used two textbooks to prepare my lecture notes:

- Michael Sipser, *Introduction to the Theory of Computation*, PSW Publishing Company 1997. This is a very readable book though it is not complete
- Arthur Fleck, *Formal Models of Computation*, World Scientific 2001, AMAST Series in Computing, Vol 7. This is a complete text with regard to the material intended to be covered in this offering of 22C:131.

Since the Theory of Computation is at the core of our profession these books should be in everybody's private library. However, I do know that these are expensive books and I will try to help putting my lecture notes on the web. But lecture notes are good for understanding while a textbook may help in many other ways.

3 Student assessment

Student assessment in this class will be based on the amount of points accumulated during the semester from exams, homework, and in-class work. The total number of points accumulated by a student during the semester will be transformed into student's score, by the following formula:

$$\text{Score} = \text{Midterm} \times 25/100 + \text{Final} \times 30/100 + \text{Assignments} \times 30/100 + \text{InClass} \times 15/100$$

That is, the Score is an averaged sum of the the Midterm Exam Points, (25% of the score in the two midterm exams), Final Exam Points, (30% of the final exam score), Assignment Points, (30% of the score in the assignments, approximatively one every other two weeks), and InClass Accumulated Points (15 % of the score obtained from in-class contribution). In-class contribution measures the students interest in this class by their presence to the lecture presentations and their contributions to problem solving performed during class time. In addition, I will use quizzes at unpredictable times to check students presence and their interest in the class. Quizzes will be graded as InClass Accumulated Points.

4 Grading Procedure

The student grade in this class will reflect student's work in the class. That is, no curving will be applied in the determination of student's final grade. If all students deserve an A

all will get it, and this is what I expect. Therefore at the beginning of the semester every student receives an A in this class. It is student's task to keep it. The letter grades will be determined as follows:

1. An A is obtained if $90 < \text{Score} \leq 100$.
2. A B is obtained if $70 < \text{Score} \leq 90$.
3. A C is obtained if $50 < \text{Score} \leq 70$.
4. A D is obtained if $30 < \text{Score} \leq 50$.
5. An F is obtained if $0 \leq \text{Score} \leq 30$, or if the student does not attend the final exam.

These ranges are not absolute. However, the lower limits will not be raised any higher; + and - will be used along with the letter scores in the final result.

5 Class Policies

- **Attendance:** Students are required to attend all classes. Their knowledge and therefore their grade depends on it. They are responsible for all announcements and material covered during class even if they did not attend.
- **Cheating:** Sharing solutions of graded assignments or copying someone else work, is not allowed. Doing that will result in a zero on the assignment for the first offense and an F in the course for the second offense.
- **Make-up exams:** Make-up exams will be offered only if there is a serious, documented reason for not being able to attend a scheduled exam, and if the request is made and motivate at least a week before the scheduled exam.

6 General CLAS Policies

- **Administrative Home:** The College of Liberal Arts and Sciences (CLAS) is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall or see the Academic Handbooks, `www.clas.uiowa.edu/students/academic_handbook/index.shtml`.
- **Academic Fraud:** Plagiarism and any other activities when students present work that is not his or her own are academic fraud. Academic fraud is reported to the departmental DEO and to the Associate Dean for Academic Programs and Services who enforces the appropriate consequences,
`www.clas.uiowa.edu/students/academic_handbook/ix.shtml`.

- **Making a Suggestion or a Complaint:** Students with a suggestion or complaint should first visit the instructor, then the course supervisor and the departmental DEO. Complaints must be made within six months of the incident, `www.clas.uiowa.edu/students/academic_handbook/ix.shtml#5`.
- **Accommodations for Disabilities:** A student seeking academic accommodations should register with Student Disability Services and meet privately with the course instructor to make particular arrangements, `www.uiowa.edu/ sds/`.
- **Understanding Sexual Harassment:** Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff, `www.sexualharassment.uiowa.edu`.
- **Reacting Safely to Severe Weather:** In severe weather, the class members will seek shelter in the innermost part of the building, if possible at the lowest level, staying clear of windows and free-standing expanses, (Operations Manual 16.14. i.).

Good luck!