CDS 101/110a
Midterm Exam

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27 October 2010

CDS 101: The exam consists of three questions, worth a total of 40 points. The time limit is 2 hours, in one sitting.

CDS 110: The exam consists of three questions, worth a total of 50 points. The time limit is 3 hours, in one sitting.

The point values for each part are given in square brackets at the beginning of the question. Budget your time to complete as much of the exam as possible and show all of your work. If time does not permit a complete answer, indicate how you would proceed as explicitly as possible.

Please note that students in CDS 101 and CDS 110 are required to answer different sets of questions (or portions of questions), depending on which course you are taking. Please be careful to answer only the questions for the course you are taking. No additional credit will be given for solutions provided to questions that are not for the course you are taking. Questions with no indication of the course should be answered by all students.

The exam is due by 5 p.m. Tuesday, 2 November, in the box outside 102 Steele.

The exam is open book. You may use the course texts (Åström and Murray), any of the optional texts (Lewis; Friedland; Franklin, Powell and Emami-Naeni), course handouts, lecture and class notes, course problem sets and solutions, and your own handwritten notes. No other books are allowed.

You may use a computer or calculator for carrying out numerical computations. MATLAB may be used but is not required. Symbolic computations using Mathematica or MATLAB/Maple are not allowed (and shouldn’t be needed). All of your answers must be handwritten or hand drawn (do not turn in code or computer plots).

You are not allowed to use the Internet during the exam, except for accessing local computing resources, such as MATLAB/SIMULINK, or material posted on the course web site (within the caltech.edu domain).

Please write your solutions in a fresh exam book (blue book). We have to grade a large collections of exams in a short time and it makes things much simpler to manage if everyone uses a blue book.