

## DM553/MM850 – Complexity and Computability 2020 – Lecture 2

### Lecture, February 3

We began with an introduction to the course. We quickly covered much of sections 1.1, 1.2, and 1.3 in chapter 1 of Sipser's textbook, but we did not cover any proofs. We began on section 1.4, introducing the Pumping Lemma for regular languages.

### Lecture, February 5

We will finish section 1.4 in Sipser. Then, we will begin on chapter 2 in Sipser, covering most of section 2.1 quickly, skipping the subsection on ambiguity, but covering Chomsky Normal Form thoroughly. We may begin on section 2.2.

### Lecture, February 10

We will finish section 2.2 from chapter 2, and cover section 2.3. We will not cover section 2.4.

### Problems to be discussed on February 11

From Sipser, do:

1. Page 155: 2.3 a-g,o.
2. Page 155: 2.5 b,e.
3. Page 155: 2.9 — also change your grammar to Chomsky Normal Form, but ignore the ambiguity question.
4. Page 155: 2.10.
5. Pages 156–158: 2.12, 2.30a, 2.31, 2.32.
6. From a DFA,  $M$ , define a grammar which generates  $L(M)$ . What form do regular grammars have?
7. Page 158: 2.33 — also change your grammar to Chomsky Normal Form.