

# Syllabus

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## CS 6723 Computability

Summer 2019, Section 001, MTWRF 8:10am-10:00am, CSM 211 (3 credits)

## Instructor

Dr. Jeff Jenness

**Office** CSM 132                      **Office Hours** TR 11:00am-12:00pm and MW 11:00pm-12:00pm  
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## Course Description

### CS 6723. Computability Theory

Turing machines and equivalent models of computation. The universal Turing machine and unsolvability results. Study of computable functions. Problem classification and hierarchy. **Prerequisites: CS 5723 or permission of professor.** Spring even.

### Program Specific Outcomes

- (Reinforced) M.S. Computer Science graduate students should have a deeper understanding of the theory and application of algorithms, programming languages, and computer processes.

### Course Outcomes

- Understand Turing machine model, and variants of Turing machines and Church-Turing Thesis.
- Understand and could apply important concepts of computability theory and complexity theory.
- Understand the limits of algorithmic solvability (computability): what is solvable and what is not solvable.
- Understand the issues of complexity: even when a problem is computationally solvable in principle.

## Grading

Grades are assigned on a standard scale with the following weights:

**Tests (2)** 60%  
**Final** 40%

Note: excessive unexcused absences will result in a 10% reduction in your overall grade.

## Schedule

*(subject to change)*

### Week Topic Reading Assignment

1Chapter 3: The Church-Turing Thesis2Chapter 4: Decidability3Chapter 5: Reducibility4Chapter 6: Advanced Topics5Review for Final

## Textbook

*Introduction to the Theory of Computation*, 3rd ed. (ISBN: 978-1133187790), by Michael Sipser. Course Technology, 2012. ([Amazon](#))

## Resources

Go to the [online repository](#)

## Software Downloads

[JFLAP](#) is software for exploring and experimenting with automata, machines and grammars.

## Course Policies

See [Department Policies](#) which will be adhered to within the course.

## See Also

- **Mathematical Induction** [en.wikipedia.org/wiki/Mathematical\\_induction](https://en.wikipedia.org/wiki/Mathematical_induction) Wikipedia article

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