

**COURSE SYLLABUS**  
**Theory of Computation COT 5310-RVC**  
**(19718)**  
**GENERAL INFORMATION**

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## PROFESSOR INFORMATION

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**Instructor:** Prof. Leonardo Bobadilla      **Phone:** 305-348-7565

**Office:** CASE 238c (MMC)

**Office Hours:** In Zoom      **Email:** bobadilla@cs.fiu.edu

**Website:** <http://users.cis.fiu.edu/~jabobadi/>

## COURSE DESCRIPTION AND PURPOSE

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This is a graduate-level course which covers the basics of theory of computation. The course cover several models of computation and their applications studies the fundamental limits on what can be efficiently computed. Topics covered include Regular Languages, Context-Free Languages, Turing Machines, Decidability, Reducibility, Time Complexity

This course will consist of 4 modules and 6 homeworks. Module availability is open. Homeworks will be completed in pairs and will be due approximately 2 weeks after. Homeworks will be evaluated within 1 weeks of submission. Communication will take place primarily via email and professor announcements. At the end of the course you would have learned central computational models and understand what problems can be efficiently solved by computer.

## COURSE OBJECTIVES

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Students will be able to:

- identify the three broad themes of theory of computation: automata theory, and computability theory, complexity theory.
- review mathematical concepts needed in the class.
- design finite automata and the equivalent regular expressions.
- design pushdown automata and the equivalent context free grammars.
- design Turing machines.
- characterize a hierarchy of classes of problems or formal languages (regular, context-free, context-sensitive, decidable, and undecidable).
- describe the Church-Turing thesis.
- show undecidability using the concept of problem reduction.
- classify decidable problems based on their time requirements.
- prove NP-completeness

## MAJOR & CURRICULUM OBJECTIVES TARGETED

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There are no listed Major & Curriculum Objectives targeted by this particular course. Should you have any questions, please contact the professor.

## TEACHING METHODOLOGY

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This is a fully online course in which all of the instructional materials and activities are delivered through Canvas, and/or other internet-based media. I will post videos and sections of the book for reading each week. You are expected to watch the videos and read each week's respective book section. In addition, I will have a zoom meeting weekly that you are encouraged to attend. I will answer questions about the content of the class and solve additional problems. Should you have any questions, do not hesitate to contact the professor.

## IMPORTANT INFORMATION

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### POLICIES

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Please review [FIU's Policies webpage](#). The policies webpage contains essential information regarding guidelines relevant to all courses at FIU, as well as additional information about acceptable netiquette for online courses.

### TECHNICAL REQUIREMENTS/SKILLS

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One of the greatest barriers to taking an online course is a lack of basic computer literacy. By computer literacy we mean being able to manage and organize computer files efficiently, and learning to use your computer's operating system and software quickly and easily. Keep in mind that this is not a computer literacy course; but students enrolled in online courses are expected to have moderate proficiency using a computer. Please go to the [What's Required](#) page to find out more information on this subject.

This course utilizes the following tools:

- [Canvas](#)
- [Microsoft](#)
- [Adobe](#)
- [Google](#)
- [YouTube](#)
- [Zoom](#)

Please visit our [Technical Requirements](#) webpage for additional information.

### ACCESSIBILITY AND ACCOMMODATION

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Please visit our [ADA Compliance](#) webpage for information about accessibility involving the tools used in this course.

For additional assistance please contact FIU's [Disability Resource Center](#).

### COURSE PREREQUISITES

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There are no prerequisites for this course.

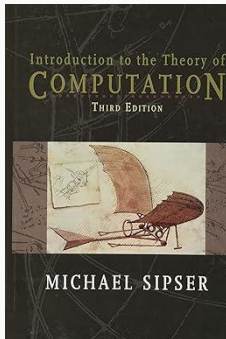
## PROCTORED EXAM POLICY

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Exams will be proctored online.

## TEXTBOOK

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Title: Introduction to the Theory of Computation  
Author: Michael Sipser  
ISBN-13 : 978-1133187790  
Edition: Third Edition  
Publisher: Cengage Learning;

You may purchase your textbook online at the [FIU Bookstore](#).

## EXPECTATIONS OF THIS COURSE

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This is an online course, which means most (if not all) of the course work will be conducted online. Expectations for performance in an online course are the same for a traditional course. In fact, online courses require a degree of self-motivation, self-discipline, and technology skills which can make these courses more demanding for some students.

### Students are expected to:

- **Review the how to get started information** located in the course content
- **Introduce yourself to the class** during the first week by posting a self-introduction in the appropriate discussion forum
- **Take the practice quiz** to ensure that your computer is compatible with Canvas
- **Interact** online with instructor/s and peers
- **Review** and follow the course calendar
- Log in to the course at least 3 times per week
- Respond to discussion boards, blogs, and journal postings with 2 days
- Respond to emails/messages within 2 days
- Submit assignments by the corresponding deadline

### The instructor will:

- Log in to the course at least 4 times per week
- Respond to discussion boards, blogs, and journal postings within 2 days
- Respond to [emails/messages] within 2 days
- Grade assignments within 14 days of the assignment deadline

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## COURSE DETAILS

## COURSE COMMUNICATION

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Communication in this course will take place via Canvas Inbox.

Visit our [Writing Resources webpage](#) for more information on professional writing and technical communication skills.

## ASSESSMENTS

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In order to mitigate any issues with your computer and online assessments, it is very important that you take the "Practice Quiz" from each computer you will be using to take your graded quizzes and exams. It is your responsibility to make sure your computer meets the minimum [hardware requirements](#).

Assessments in this course are not compatible with mobile devices and should not be taken through a mobile phone or tablet. If you need further assistance please contact [FIU Online Support Services](#).

### Midterm Exams

There will be two Midterm exam in this course. and one Final Exam. You will be responsible for all material covered in lectures, homework, and assigned readings. The exams will have multiple choice, true and false, and exercise questions.. Scores will be available after the professor grades the exams within 7 days of the test. There are about 12 questions in the Midterm and you will have 75 minutes to complete it.

### Final Exam

There will be one Final Exam. You will be responsible for all material covered in lectures, homework, and assigned readings. The exam will have multiple choice, true and false, and open-ended questions. You will have 1 attempt for the exam. Scores will be available after the professor manually grades the exams within 7 days of the due date. Scores will be available after the professor grades the exams within 7 days of the test.. There are about 15 questions in the Final Exam and you will have 2 hours to complete it. The Final Exam is cumulative.

## ASSIGNMENTS

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Solving problems is a fundamental part of the course. Success in the class depend on the effort put in solving the homework problems. Try to think about the problems individually before discussing them with a group partner. Also, I would encourage you to think about all the problems in the text whether they are assigned or not. There will be a homework assignments every other week during the semester. Homeworks will be uploaded to Canvas. For the homework, you can work in pairs or individually. Please put your name and panther ID at the top of the homework. If you work in a pair, submit one copy with both names at the top. Please cite all the sources (books, webpages, etc.) that you use for solving your homework.

## ZOOM MEETINGS

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Zoom is an online meeting room where you can interact with your professor and fellow students by sharing screens, sharing files, chatting, broadcasting live audio, and taking part in other interactive online activities. We will be utilizing this tool to conduct office hours, additional problem solving, reviews for exams, and answering questions. The zoom meetings will take place on Thursdays from 6:00 to 7:00 pm

## GRADING

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Course Requirements	Number of Items	Points for Each	Total Points Available	Weight
Quizzes	2	100	200	5%
First Midterm	1	100	200	25%
Second Midterm	1	100	100	25%
Final Exam	1	100	100	30%
Assignments	6	100	600	15%
<b>Total</b>	<b>11</b>	<b>N/A</b>	<b>1100</b>	<b>100%</b>

Letter Grade	Range	Letter Grade	Range	Letter Grade	Range
A	90 or above	B-	70 or above	F	65 or less
A-	85 or above	C+	65 or above		
B+	80 or above				
B	75 or above				