

CSCI 4325 Automata, Formal Lang, & Comp Syllabus

Course Information

TUE, THU 12:30 PM 01:45 PM Edinburg EIEAB 1.212

Traditional Face-to-Face

Final: Dec. 10th (M), 10:15 a.m. - 12:00 p.m., EIEAB 1.212.

Instructor Information

Timothy Wylie

Email: timothy.wylie@utrgv.edu

Office Location

EIEAB 3.219

Office Hours: M-F 1-2

Course Description

The course presents formal computation models. Topics include finite state machine, pushdown state machine, Turing machine, halting problem, definition and properties of formal grammars and their languages as well as theory of computability and complexity including the complexity of optimization and approximation problems. Prerequisite: Grade of C or better in: CSCI 3333 or CMPE 3333.

Credit Hours: 3

Core Curriculum Component Area:

Tentative Calendar of Activities

Week 1: Introduction, mathematical concepts

Weeks 2-4: Automata, Regular Languages

Weeks 5-6: Context-Free, Non-regular Languages

Weeks 6-7: Turing Machines, Decidability

Weeks 8-9: Computability Theory, Undecidable Languages

Weeks 10-11: Complexity Theory, Algorithms

Weeks 12-14: Complexity Classes, Reductions

Weeks 14-15: Space complexity. Topics of Interest

Week 16: Final

Course Learning Objectives

What is computation? This question is related to various computation models and their similarities.

How are language definition and computability intertwined? This question is about the equivalence of language definition and computational capability.

Assessment of Learning

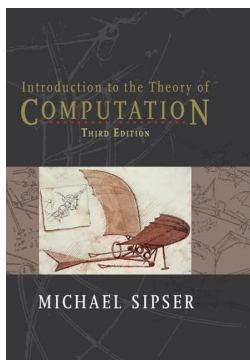
Grading Components:

The material in this course is naturally cumulative, with each week's topics building on all the prior material. Therefore, each exam will focus on the material covered since the previous exam, however, the student is expected to understand and apply all previous course material.

Grading Scale

Letter	Numerical Value
A	90 - 100
B	80 - 89
C	70 - 79
D	60 - 69
F	Below 60

Required Readings and Materials



Introduction to the Theory of Computation

ISBN: 9780357670583

Authors: Michael Sipser

Publisher: Cengage Learning

Publication Date: 2012-06-27

Edition: 3

Technology Needs

Course Website

academic.timwylie.com/26CSCI4325F/CSCI4325.html

Discord

Email

University Attendance Policy

Course Attendance

Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV's attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; have been provided such an accommodation by Student Accessibility Services (SAS); for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

University Policy on Recordings in Class

The use of classroom recordings is governed by the Federal Educational Rights and Privacy Act (FERPA), UTRGV's acceptable-use policy, and UTRGV HOP Policy STU 02-100 Student Conduct and Discipline. A recording of class sessions will be kept and stored by UTRGV, in accordance with FERPA and UTRGV policies. Your instructor will not share the recordings of your class activities outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. You may not share recordings outside of this course. As referenced in [UTRGV HOP Policy STU 02-100 Student Conduct and Discipline](#), doing so may result in disciplinary action. This is an instruction from university officials.

University AI Policy

At UTRGV, students are expected to use AI in ways that are honest, ethical, and consistent with course and assignment expectations. Because AI expectations may vary by course, instructor, assignment, and discipline, students should review the syllabus and assignment instructions before using AI. When expectations are unclear, students should ask their instructor before submitting work that involved AI. Students are responsible for checking the accuracy of AI-assisted work and protecting private or sensitive information.

Course Use of Artificial Intelligence (AI)

Not needed.

University Academic Integrity Statement

Academic integrity is fundamental in our actions, as any act of dishonesty conflicts as much with academic achievement as with the values of honesty and integrity. Violations of academic integrity constitute academic dishonesty and include, but are not limited to: [cheating, plagiarism \(including self-plagiarism\), and collusion](#); submission for credit of any work or materials that are attributable in whole or in part to another person; taking an

examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts ([UT System Board of Regents Rules and Regulations](#), [UTRGV Handbook of Operating Procedures STU 02-100](#), and [UTRGV Academic Integrity Guidelines](#)). **All violations of Academic Dishonesty will be reported to Student Rights and Responsibilities in accordance with [HOP STU 02-100, Student Code of Conduct](#).**

Student Support Resources

Student Support Services

Center Name	E-Mail
Advising Center	AcademicAdvising@utrgv.edu
Career Center	CareerCenter@utrgv.edu
Counseling Center	Counseling@utrgv.edu
Food Pantry	FoodPantry@utrgv.edu
Learning Center	LearningCenter@utrgv.edu
University Library	circulation@utrgv.edu
Writing Center	WC@utrgv.edu
UCentral	ucentral@utrgv.edu
Brightspace Assistance (COLTT)	Ticket Portal

University Policy Statements

SEXUAL MISCONDUCT AND MANDATORY REPORTING

In accordance with UT System and institutional policies, your instructor is a “Responsible Employee” for mandatory reporting purposes under Title IX regulations and Texas Education Code sections 51.251-252 and must report any instance of sexual misconduct by or against a student or employee of the institution, which includes sexual assault, stalking, dating violence, domestic violence, and sexual harassment to the [Office of Title IX and Equal Opportunity](#) (otixeo@utrgv.edu). More information can be found on the [OTIXEO website](#). If students, faculty, or staff would like confidential assistance, or have questions, they can contact OAVP ([Office for Advocacy & Violence Prevention](#)).

STUDENT ACCESSIBILITY SERVICES

[Student Accessibility Services](#) has offices on Brownsville and Edinburg campuses. [Visit the SAS web page to learn more and explore accessibility services.](#)

STUDENTS WITH DISABILITIES

Students with a documented disability (physical, psychological, learning, or other disability which affects academic performance) who would like to receive reasonable academic accommodations should contact [Student Accessibility Services \(SAS\)](#) for additional information. The student must apply for accommodations using the [mySAS portal](#) and is responsible for providing sufficient documentation of the disability to SAS. Upon

submission of the request, students should expect to participate in an interactive discussion, or an intake appointment, with SAS staff. Accommodations may be requested at any time but are not granted retroactively, meaning they are valid moving forward after approval by SAS. Academic accommodations will not apply prior to SAS' approval. Students should contact SAS early in the semester/module for guidance.

Students who experience a broken bone, severe injury, or undergo surgery may also be eligible for temporary accommodations. Please contact [Student Accessibility Services \(SAS\)](#) for more information.

PREGNANCY, PREGNANCY-RELATED, AND PARENTING ACCOMMODATIONS

Title IX of the Education Amendments of 1972 prohibits discrimination based on sex, which includes discrimination based on pregnancy, marital status, or parental status.

Students seeking accommodations related to pregnancy, pregnancy-related condition, or parenting should submit the request using the form found at [Pregnancy and Parenting | UTRGV](#).

MANDATORY COURSE EVALUATION PERIOD

Students have the opportunity to complete an ONLINE evaluation of this course through Watermark Course Evaluations and Surveys, which may be accessed through my.UTRGV or the Brightspace course module. Course evaluations are used by the instructor to inform revisions of the course to ensure student success. Course evaluations are also used by the instructor for annual performance review, promotion applications, teaching award applications, among others.