

# CSCI 4341/6370, CRN 67029/64820

## Games & Computation

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Instructor	Dr. Tim Wylie
Contact	Office: EIEAB 3.219 Phone: 956-685-2577 Email: timothy.wylie@utrgv.edu
Office Hours	TR 9:00 a.m. - 11:00 a.m.
Schedule	Lecture: MW, 2:00 p.m. - 3:15 p.m., EIEAB 2.203
Lab	
Final Exam:	May 9 <sup>th</sup> (M), 1:15 p.m. - 3:00 p.m., EIEAB 2.203
Course Website	<a href="http://academic.timwylie.com/22GCS/">http://academic.timwylie.com/22GCS/</a>

CSCI 4325/6370: Games & Computation. This course provides an overview of the complexity of games and puzzles. The topics include hardness results and complexity classes with constraint logic reductions, combinatorial game theory, and standard game theory. The final report for each group summarizes weekly objectives, complexity, programming assignments, CGT endgame positions, and other related work. Additional topics may include some basic ML techniques, and elements of game design. Prerequisites: CSCI 3310 (any discrete Math equivalent) and CSCI/CMPE 3333.

## The Briefing

Life is full of challenges. Sometimes just getting out of bed is challenging. Sometimes the weight of the world has pushed you down so much that you feel like you are suffocating beneath it having to do even a trivial task. Sometimes life is full of hard choices, stupid people, and unjustness and unfairness. This course is not that hard. It is, however, harder than getting out of bed. This is obvious, as you had to get out of bed to be here. And here is where you begin the story of this semester: in a classroom, surrounded by a few friends and a few strangers, with a professor who claims to have your best interest in mind.

The truth is that the evil genius and mad scientist Dr. Wylie has trapped you in a world of theory and drudgery. He desires to fail everyone, and lured you and your companions into his course under the appearance of fun. You must arm yourself and race against time to stop him. On this epic quest you must face your fears, fight impossible odds, and accomplish amazing feats of perseverance and intelligence.

## Your Team

Your party of travelers will be pushed through numerous puzzles and challenges to escape the course successfully, and to test your mental agility. This requires many advanced fighting techniques that you must master. First though, you must find your squad, group, party, team, posse - the people who will help you survive. This is crucial to your success. Align yourself with the best. It is important that you have people watching your back. You need a group of four (or two for masters) to complete the missions. Every team has four key roles to fill:

The Professor. The person who stays on top of everything. You are organized and smart. Help keep your group focused and directed. Make goals and deadlines and stick with them. Keeping everyone going is hard. The semester is long and challenging, but you have the skills to keep going. You relate to Alan Turing.



The Enchantress. The person looking at big pictures and finding magic in it all. You are bright and artistic. You optimistically bring the group up and push everyone to work harder and enjoy the work they are doing. You see connections that no one else does and this provides insight to make it all work. You relate to Ada Lovelace.



The Engineer. The person figuring out the nuts and bolts of it all. You are focused and driven to find answers and discover exactly how it works. You take small ideas and turn them into revolutionary inventions. You create gadgets that turn into proofs. Charles Babbage is your guide.



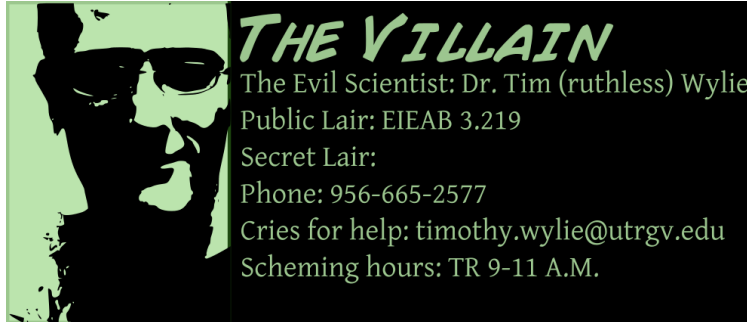
Amazing Grace. The person that everyone calls amazing. You are a mix of all the roles to an alarming degree. You are organized, insightful, and focused, but you are also a team leader. Your skill is putting things together. You bring an understanding of your team's strengths into balance so everyone works in sync. You masterfully craft individual pieces into finished products that move the entire group to success. You have been blessed by Grace Hopper.



Your team is now complete, and has all the pieces needed to succeed. Hopefully you already know your team well, as they greatly influence your mission success. If not, spend some time playing games and getting to know them. You should be good friends in order to have trust. If you can not trust anyone, and want to do solo missions, then you are not ready for this challenge.

## The Boss

You are up against Dr. Wylie, a man who happily increases class size just so he can fail more students.



During the semester, your team will need to devise an escape plan as one of your tasks. Using your savy skills you need to design a plan (a game) to help confuse the evil scientist. This will require some serious design and imagination in a MacGuyver-esque level of genius hackery. Your aim is to impress and confuse with something challenging, and yet fun.

At the end of every game is the boss battle. There is only one way to beat an evil scientist: you have to outsmart him! With your squad working together, you must research and write how to defeat the evil game he has assigned to you. This includes proving its complexity, showing how to approach it (in some useful way), and writing an A.I. to beat the evil mastermind at his own game!

Disguises. You will come face-to-face with Dr. Wylie and you never know what evil he has planned. You should wear a face mask to shield any toxins in the air and to keep him from recognizing your face.

Tools, Training, Help? No one knows what lies ahead to prepare you. Dr. Wylie certainly will not tell you ahead of time.

Masters Students. HA HA HA HA HA HA HA HA HA HA HA HA HA HA HA HA.

# Mission Specifics

## Pandemic Information

COVID-19 Resources. Please visit the UTRGV COVID-19 protocols web page ([www.utrgv.edu/commitment/info/protocols](http://www.utrgv.edu/commitment/info/protocols)) for the most up-to-date COVID-19 campus information and resources. The COVID-19 Frequently Asked Questions (FAQs) web page ([www.utrgv.edu/commitment/faq/](http://www.utrgv.edu/commitment/faq/)) offers additional guidance to specific questions. To submit a question for the FAQ, please email [WelcomeBack@utrgv.edu](mailto:WelcomeBack@utrgv.edu).

UTRGV Vaccine Portal. UTRGV Students are eligible to receive the COVID-19 Vaccine. Students may access and complete their vaccine profile via the UTRGV Vaccine Portal ([www.utrgv.edu/vaccineportal](http://www.utrgv.edu/vaccineportal)). For additional information on the COVID-19 Vaccine, please visit the UTRGV Vaccine web page ([www.utrgv.edu/commitment/vaccine](http://www.utrgv.edu/commitment/vaccine)).

## Course Overview

Modality. This is a Traditional Face-to-Face Course (TR). The modality is subject to change based on recommendations and guidelines. A change would move to a Hybrid/Reduced Seating Course (REDUC) where instruction is partially online, but all exams and quizzes are still in person.

Organization. Parts of the course will be online. Class participation will require the following online services and places that must be checked frequently.

- University email ([utrgv.edu/mail](mailto:utrgv.edu/mail))
- University Blackboard course website (through [my.utrgv.edu](http://my.utrgv.edu))
- Course website
- Discord for the class (invite will be on BB)
- Zoom with working camera and microphone (meeting links posted on BB)

All announcements for the course will be posted on BB and all due dates posted on the website. Each service serves a different purpose. The course website gives an overview of topics and major due dates, files, assignments, etc. The Blackboard site serves as a place to announce new items, post grades, etc. The Discord server

is an open forum for everyone to talk and connect. This is for discussing homework, corrections, clarifications, and for getting in touch with me. Zoom may be used for office hours and if we need to have some lectures online. A digital writing device is recommended for course interaction.

Recording. 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. Doing so may result in disciplinary action under UTRGV HOP Policy STU 02-100 Student Conduct and Discipline.

Grading. In order to beat the boss, you and your team must acquire many skills and ensure that you have perfected them. When you attack and demonstrate your abilities, you are rewarded with points. If you score enough, you can easily escape. The breakdown of points is as follows:

<u>Grade Breakdown</u>		<u>Final Grade</u>	
Perserverance (Attendance)	10	90 -100	A
Lab Experiments (Labs/Gameplay)	20	80 -89	B
Skill Training (Assignments)	20	70 -79	C
Squad Patrol (Group work)	20	60 -69	D
Boss Battle (Final Project)	30	0 -59	F
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Total possible score (max):	100		

Note: Grades may be adjusted to reflect the overall performance of the class.

Outline of the Mission. The topics you will be exposed to will vary quite substantially. However, a rough schedule is given to feed your fears.

Week 1 Form groups, intro to games  
Weeks 2-3 Impartial combinatorial games  
Weeks 4-5 Partizan combinatorial games  
Weeks 6-7 Complexity and Constraint Logic  
Weeks 8-9 Advanced Algorithmic Game Theory  
Weeks 10- Advanced topics, project work

Late Work Policy. In-class exercises and quizzes will not be accepted late. Assignments must be turned in at the specified time on the given due date for full credit. Any assignment turned in late will receive 50 credit. Assignments turned in early will receive an additional 10 .

Make-up Policy. No make-up exams will be given except for university sanctioned excused absences. If you need to miss an exam, it is your responsibility to contact me before the exam, or as soon after the exam as possible. Missing an exam without an approved (by the university or me) excuse will result in a zero.

# UTRGV Mission Guidelines

## UTRGV Course Policies

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. Accommodations related to COVID-19 should also go through SAS. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

Class Drop Policy. According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the 3-peat rule and the 6-drop rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time. The census date is Feb 2<sup>nd</sup>, which is the last day to drop the class without it appearing on your transcript, and the last date to drop is April 11<sup>th</sup>.

Scholastic Integrity Policy. Members of the UTRGV community uphold the Vaquero Honor Code's shared values of honesty, integrity and mutual respect in our interactions and relationships. In this regard, 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 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 (Board of Regents Rules and Regulations, STU 02-100, and UTRGV Academic Integrity Guidelines). All violations of Academic Integrity will be reported to Student Rights and Responsibilities through Vaqueros Report It.

Course Evaluation. Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (<http://my.utrgv.edu>); you will be contacted through email with further instructions. Students who complete their evaluations will have priority access to their grades. Online evaluations will be available on or about:

Spring Module 1 (7 Weeks) February 23 – March 1

Spring Regular Term 2022 April 15 – May 4

Spring Module 2 (7 Weeks) April 20 – 26

Sexual Misconduct and Mandatory Reporting. In accordance with UT System regulations, your instructor is a Responsible Employee for reporting purposes under Title IX regulations and so must report to the Office of Institutional Equity & Diversity (OIED@utrgv.edu) any instance, occurring during a student's time in college, of sexual misconduct, which includes sexual assault, stalking, dating violence, domestic violence, and sexual harassment, about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at [www.utrgv.edu/equity](http://www.utrgv.edu/equity), including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect that is free from sexual misconduct, discrimination, and all forms of violence. If students, faculty, or staff would like confidential assistance, or have questions, they can contact OVAVP (Office for Victim Advocacy & Violence Prevention) at (956) 665-8287, (956) 882-8282, or OVAVP@utrgv.edu.

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. In order for accommodation requests to be considered for approval, the student must apply using the mySAS portal located at [www.utrgv.edu/mySAS](http://www.utrgv.edu/mySAS) and is responsible for providing sufficient documentation of the disability to SAS. Students are required to participate in an interactive discussion, or an intake appointment, with SAS staff. Accommodations may

be requested at any time but are not retroactive, meaning they are valid once approved by SAS. Please 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.

Pregnancy, Pregnancy-related, and Parenting Accommodations. Title IX of the Education Amendments of 1972 prohibits sex discrimination, which includes discrimination based on pregnancy, marital status, or parental status. Students seeking accommodations related to pregnancy, pregnancy-related condition, or parenting (reasonably immediate postpartum period) should submit the request using the form found at <https://www.utrgv.edu/pregnancyandparenting> for review by Student Accessibility Services.

#### Student Accessibility Services.

Brownsville Campus: Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at [ability@utrgv.edu](mailto:ability@utrgv.edu).

Edinburg Campus: Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at [ability@utrgv.edu](mailto:ability@utrgv.edu).

Student Services. Students who demonstrate financial need have a variety of options when it comes to paying for college costs, such as scholarships, grants, loans and work-study. Students should visit the Student Services Center (U Central) for additional information. U Central is located in BMAIN 1100 (Brownsville) or ESSBL 1145 (Edinburg) or can be reached by email ([ucentral@utrgv.edu](mailto:ucentral@utrgv.edu)) or telephone: (888) 882-4026. In addition to financial aid, U Central can assist students with registration and admissions.

Students seeking academic help in their studies can use university resources in addition to an instructor's office hours. University Resources include the Advising Center, Career Center, Counseling Center, Learning Center, and Writing Center. The centers provide services such as tutoring, writing help, counseling services, critical thinking, study skills, degree planning, and student employment. In addition, services such as the Food Pantry are also provided. Locations are listed below.

Center Name	Brownsville Campus	Edinburg Campus
Advising Center (AcademicAdvising@utrgv.edu)	BMAIN 1.400 (956) 665-7120	ESWKH 101A (956) 665-7120
Career Center (CareerCenter@utrgv.edu)	BINAB 1.105, (956) 882-5627	ESSBL 2.101, (956) 665-2243
Counseling Center (Counseling@utrgv.edu)	BSTUN 2.10, (956) 882-3897	EUCTR 109, (956) 665-2574
Food Pantry (FoodPantry@utrgv.edu)	BCAVL 101 & 102, (956) 882-7126	EUCTR 114, (956) 665-3663
Learning Center (LearningCenter@utrgv.edu)	BMSLC 2.118, (956) 882-8208	ELCTR 100, (956) 665-2585
Writing Center (WC@utrgv.edu)	BUBLB 3.206, (956) 882-7065	ESTAC 3.119, (956) 665-2538

Dean of Students Resources. The Dean of Students office assists students when they experience a challenge with an administrative process, unexpected situation such as an illness, accident, or family situation, and aids in resolving complaints. Additionally, the office facilitates student academic related requests for religious accommodations, support students formerly in foster care, helps to advocate on behalf of students and inform them about their rights and responsibilities, and serves as a resource and support for faculty and campus departments.

Vaqueros Report It allows students, staff and faculty a way to report concern about the well-being of a student, seek assistance in resolving a complaint, or report allegations of behaviors contrary to community standards or campus policies. The Dean of Students can be reached by emailing dos@utrgv.edu, by logging into Virtual Office hours ([www.utrgv.edu/studentlife/about/virtual-office-hours](http://www.utrgv.edu/studentlife/about/virtual-office-hours)) in which a representative is available Monday-Friday 9:00-11:00 a.m. and 1:00-4:00 p.m, or by visiting one of the following office locations: Cavalry (BCAVL) 204 or University Center (EUCTR 323). Phone: 956-665-2260.