**UTRGV logo**

**CSCI 4335.90L:Computer Architecture**

**SYLLABUS**

**Spring 2021**

*Subject to any new Texas legislative mandate changes.*

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| **Course Information:**  Meeting times: Tuesdays and Thursdays 11:00 am to 12:15pm  Meeting location Please enter blackboard, choose this course, then click on zoom classroom.  **Course Modality:** Online Synchronous Courses (OSYNC). Synchronous learning occurs on set schedules and time frames. Students and instructors are online at the same time since lectures, discussions, and presentations take place at specific hours. All students must be online at that exact time in order to participate in the class. |
| **Instructor Information:**  **Instructor Name: Dr. John P. Abraham**  Phone: (956) 665-3550 E-Mail: [john.abraham@utrgv.edu](mailto:john.abraham@utrgv.edu)  **Office location: EIEAB 3.243 (New Eng Bldg in Edinburg) Office hours:**Will open zoom 30 minutes before class time, if you need to speak with me, you can do it then or at the end of the class. Both the TA and I will be available all the time through emails.  We can create a new zoom link, if you want to speak privately. |

**Important: This syllabus is under revision, final syllabus will be posted on the first day of the class.**

**My Schedule**

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| --- | --- | --- | --- |
| **CSCI 4335.90L**  Computer Architecture  Jan 11,2021 to May 6, 2021 | **TTh 11 am to 12:15pm**  This will be zoom administered class at a specified time. Attendance required. |  |  |
| **CSCI 6345.90L**  Ecommerce Implementation | **Thursdays 6:30 to 9 pm**  This will be zoom administered class at a specified time. Attendance required. |  |  |
|  |  |  |  |
| **Office Hours** | **Will open zoom 30 minutes before class time, if you need to speak with me, you can do it then or at the end of the class.** |  |  |
|  | **TA: Oscar Torres: TBA**. |  |  |

**Welcome & Introduction to COURSE MODALITY**

**Online Synchronous Courses:**These courses will be delivered fully online. There will be a designated class meeting time for real-time instructor/student interaction, which will be conducted remotely via online platforms from the safety of your home. This real-time interaction may be supplemented by the digital presentation of course content.  Your instructors will provide you with feedback on assigned work, communicate with you electronically, and be available to meet with you as defined on this syllabus.

Course Description, Prerequisites & MODE OF LEARNING: A study of the operational units and their interconnections of a modern computer as well as the theory behind the design of the instruction set, control unit, registers, memory hierarchy and addressing modes, bus structures, input/output, and storage units. Similarities between CISC and RISC architectures and related issues such as instruction level parallelism and superscalar processors are discussed. Prerequisite: Grade of C or better in: [CSCI 2380 or CMPE 2380] and [CSCI 2333 or CMPE 2333 or ELEE 3435 or CMPE: <https://utrgv.zoom.us/j/81446403858>

**ABET Learning Objectives/Outcomes for the Course**

* ABET (1).       Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
* ABET (2).      Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline.
* ABET (6).      Apply computer science theory and software development fundamentals to produce computing-based solutions.

COVID-19 RESOURCES**:**

Please visit the [UTRGV COVID-19 Website](https://www.utrgv.edu/coronavirus/index.htm) via the following link for the most up-to-date information and resources (<https://www.utrgv.edu/coronavirus/index.htm>).  This includes information on self-screening questions, links to forms for travel and contact, etc.

Face Covering [Protocol](https://www.utrgv.edu/coronavirus/updates/2020-05-29/index.htm)**:**

As part of the university’s ongoing COVID-19 mitigation efforts to maintain a healthy environment for all members of our campus community, anyone entering a campus building must wear a face covering that covers the mouth and nose. The covering must be worn in all hallways, public spaces, research labs, teaching/computer labs, libraries, classrooms, automobiles with a passenger, stairwells, elevators and common areas, as well as office spaces. In office spaces, when social distancing of 6 feet is possible and maintained, face coverings may be removed. Face coverings also are required in outdoor settings when safe social distancing and gathering practices are not possible.

**Textbooks:**

I used electronic version of the following textbooks to get my notes.  I strongly recommend you purchase these books:

Stallings, William, Computer Organization and Architecture, Designing for Performance, 10th Edition (There is an 11th edition (2019) is available). ISBN 978-0-13-410161-3

Hennessy, John L., and Patterson David A.  Computer Architecture A Quantitative Approach, 5th Edition. Elsevier. 2012 ISBN 978-0-12-383-872-8. I will be using this book to enhance certain topics. Please download MIPS Assembler from this link: <http://courses.missouristate.edu/kenvollmar/mars/> We will be doing some MIPS programming.

**Recommended Reading:**

William Stallings, Computer Architecture

Irvine. Assembly Language for Intel-Based Computers

Nutt. Operating Systems, A Modern Perspective

**Course Topics:**

**Course Structure:**

We will follow textbook outline for lectures drawing on Henessy and Patterson for Pipelined architecture. There will be approximately one lab assignment per week except for the first and last weeks and during midterm.

**Course Objectives:** Upon completion of this course students will be able to answer questions or do calculations related to the following topics of computer architecture:

* History of computers
* Differentiate between architecture and organization
* Design an instruction set for an imaginary von Neumann machine including bits assigned to opcode and operand.
* Essential registers used by the system and users
* Memory hierarchy and related calculations
* processor instruction sets and architecture comparing RISC vs CISC
* Calculations involving processor performance and Amdahl’s law.
* Pipelined process and MIPS architecture and calculate performance improvement.
* Identify hazards related to pipelining.
* Instruction level Parallelism (ILP) and loop unrolling.
* Microcode

**Course Assignments and Grading:**

There will be one midterm and one final examination.  These exams will constitute 70% of the grade.  25% of the grade will be for lab assignment (generally administered by my TA).  Remaining 5% will be for attendance.   Letter grades will be based on the following grading scale A: 90-100% B: 80-89% C: 70-79% F: 0-69%

**There will be two major exams.  If you must miss an exam, make prior arrangements. No make-up exams will be given unless you contact me in advance! Homework will be submitted using Blackboard. Late homework will be levied heavy penalties.  Penalty: One day late 10%, 1 week late 20%, 2 weeks late 50%.  After 2 weeks you will receive a 0 for the assignment.**

**Important Notice about taking exams:**

Your enrollment in this course requires that you use Respondus Lockdown Browser and Respondus Monitor for online assessment proctoring. LockDown Browser is a custom browser that locks down the testing environment within Blackboard and replaces regular browsers such as Chrome, Firefox, and Safari. Respondus Monitor requires you to have a webcam and microphone as it will record you while taking your assessment. **YOUR ACTIVITIES ARE RECORDED WHILE YOU ARE LOGGED INTO OR TAKING YOUR ASSESSMENT(S).  THE RECORDINGS SERVE AS A PROCTOR AND WILL BE REVIEWED AND USED IN AN EFFORT TO MAINTAIN ACADEMIC INTEGRITY.**You can find more detailed information on [Lockdown Browser and Monitor](https://www.utrgv.edu/online/getting-support/student-support/respondus/index.htm) at [UTRGV.edu/online](https://nam01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.utrgv.edu%2Fonline%2Fgetting-support%2Fstudent-support%2Frespondus%2Findex.htm&data=02%7C01%7Cpriscilla.lozano%40utrgv.edu%7C6e38d72002b74279921d08d7df9e3c2c%7C990436a687df491c91249afa91f88827%7C0%7C0%7C637223743015282674&sdata=lE6Dcm7gfPcp7rp86Xm5vTjmjTZ1CJCAxSfY6mJ7F7A%3D&reserved=0).

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. With students’ permission, **I will record the lectures and post them** in Blackboard; however, **I will need everyone acknowledge permission through an email to me.**  *The use of recordings will enable you to have access to class lectures, group discussions, etc. in the event you have to miss a synchronous or face to face class meeting due to illness or other extenuating circumstance. Our use of such technology 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.*

**Blackboard Support**

If you need assistance with course technology at any time, please contact the [Center for Online Learning and Teaching Technology](https://www.utrgv.edu/online/) (COLTT).

| **Campus:** | **Brownsville** | **Edinburg** |
| --- | --- | --- |
| **Location:** | Casa Bella (BCASA) 613 | Education Complex (EEDUC) 2.202 |
| **Phone:** | 956-882-6792 | 956-665-5327 |

**Toll Free: 1-866-654-4555**

Office Hours: Monday - Friday, 7:30 a.m. - 6:00 p.m.  
Support Tickets Submit a Support Case via our [Ask COLTT Portal](https://utrgv.edu/coltthelp)

**24/7 Blackboard Support**

Need Blackboard assistance after hours? You can call our main office numbers, 956-882-6792 or 956-665-5327, to speak with a support representative.

**Makeup Work:**Additionally, if work can be made up, what mechanisms have you set up to help students keep up with coursework in the event they have to miss class? Will you have recordings of all class meetings available? Will on-line quizzes/examinations be available?

Should you elect to record your instruction, sample syllabus language is included here:

*The use of recordings will enable you to have access to class lectures, group discussions, etc. in the event you have to miss a synchronous or face to face class meeting due to illness or other extenuating circumstance. Our use of such technology 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.*

ACADEMIC INTEGRITY:

Members of the UTRGV community uphold the [Vaquero Honor Code](https://nam01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.utrgv.edu%2Fstudentlife%2Fabout%2Fvaquero-honor-code%2Findex.htm&data=02%7C01%7Cdavid.granado%40utrgv.edu%7C2b62b139d6dd4e81de4208d83567012f%7C990436a687df491c91249afa91f88827%7C0%7C0%7C637318063815870808&sdata=u3JK2q8UqFwgzYkzXZWeIRM%2FuNsVreezdMT5ZQr8tdE%3D&reserved=0)’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**](https://nam01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.utrgv.edu%2Fen-us%2Fstudent-experience%2Freport-it%2F&data=02%7C01%7Cdavid.granado%40utrgv.edu%7C2b62b139d6dd4e81de4208d83567012f%7C990436a687df491c91249afa91f88827%7C0%7C0%7C637318063815880802&sdata=AxekhYtwdB%2Baey6EThon1hqp19tXWY7HmAdrWDFIELA%3D&reserved=0)**.**

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](https://nam01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.utrgv.edu%2FmySAS&data=02%7C01%7Cdavid.granado%40utrgv.edu%7C47dbf090677947b5e67e08d83305c9e4%7C990436a687df491c91249afa91f88827%7C0%7C0%7C637315447247309796&sdata=k%2FZq6WdNnZPfJN1x0egJQ9q0AMN%2Fd0pCtmNuRhnMy2g%3D&reserved=0) 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) are encouraged to apply to **Student Accessibility Services** using the following link: [Pregnancy Accommodations Request Form](https://cm.maxient.com/reportingform.php?UnivofTexasRGV&layout_id=22) [https://www.utrgv.edu/pregnancy](https://nam01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.utrgv.edu%2Fpregnancy&data=02%7C01%7Cdavid.granado%40utrgv.edu%7C47dbf090677947b5e67e08d83305c9e4%7C990436a687df491c91249afa91f88827%7C0%7C0%7C637315447247309796&sdata=W%2BBV%2Bu2W%2FFo292T1PTZEqwcRWBp0bxcCT4YD1N07Mvg%3D&reserved=0)

**Student Accessibility Services:**

**Brownsville Campus**: Student Accessibility Services is located in 1.107 in the Music and Learning Center building (BMSLC) and can be contacted by phone at (956) 882-7374 or via email at [ability@utrgv.edu](mailto:ability@utrgv.edu).

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

MANDATORY COURSE EVALUATION PERIOD**:**

Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account ([http://my.utrgv.edu](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.

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](https://nam01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.utrgv.edu%2Fequity&data=02%7C01%7Cdavid.granado%40utrgv.edu%7C3d4a82332e444b8e606d08d834d42073%7C990436a687df491c91249afa91f88827%7C0%7C0%7C637317432985425767&sdata=jCnOqfBL3vxfYuvYF3qtjVy4tmK9o9m%2FBghvXKfL%2FN4%3D&reserved=0), 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](mailto:OVAVP@utrgv.edu).

COURSE DROPS:

According to UTRGV policy, students may drop any class without penalty earning a grade of DR (drop) 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.

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 1.100 (Brownsville) or ESSBL 1.145 (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](mailto:AcademicAdvising@utrgv.edu) | BMAIN 1.400  (956) 665-7120 | ESWKH 101A  (956) 665-7120 |
| **Career Center**  [CareerCenter@utrgv.edu](mailto:CareerCenter@utrgv.edu) | BINAB 1.105  (956) 882-5627 | ESSBL 2.101  (956) 665-2243 |
| **Counseling Center**  [Counseling@utrgv.edu](mailto:Counseling@utrgv.edu)    [Counseling and Related Services List](https://www.utrgv.edu/facultysuccess/_files/documents/syllabus-statement-for-counseling-12-16-19.pdf) | BSTUN 2.10  (956) 882-3897 | EUCTR 109  (956) 665-2574 |
| **Food Pantry**  [FoodPantry@utrgv.edu](mailto:FoodPantry@utrgv.edu) | BCAVL 101 & 102  (956) 882-7126 | EUCTR 114 (956) 665-3663 |
| **Learning Center**  [LearningCenter@utrgv.edu](mailto:LearningCenter@utrgv.edu) | BMSLC 2.118  (956) 882-8208 | ELCTR 100  (956) 665-2585 |
| **Writing Center**  [WC@utrgv.edu](mailto:WC@utrgv.edu) | BUBLB 3.206  (956) 882-7065 | ESTAC 3.119  (956) 665-2538 |

**Calendar of Activities  - Please follow Blackboard deadlines.**

Important dates relative to the academic calendar. The UTRGV academic calendar can be found at <https://my.utrgv.edu/home> at the bottom of the screen, *prior to login*. Some important dates for Spring 2021 include:

Spring 2021 Term (January 11 – May 6)

Oct. 26 (Mon.) Registration Begins Jan. 6 (Wed.) Payment Due Last day to join a waitlist

Jan. 8 (Fri.) Last day to withdraw (drop all classes) and receive a 100% refund

Jan. 11 (Mon.) Spring classes begin

Jan. 17 (Sun.) Last day to add or register for Spring classes

Jan. 15 (Fri.) Last day to withdraw (drop all classes) and receive an 80% refund

Jan. 18 (Mon.) Martin Luther King Jr. Holiday. No classes.

Jan. 25 (Mon.) Last day to withdraw (drop all classes) and receive a 70% refund

Jan. 27 (Wed.) Census Day (last day to drop without it appearing on the transcript)

Feb. 1 (Mon.) Last day to withdraw (drop all classes) and receive a 50% refund

Feb. 8 (Mon.) Last day to withdraw (drop all Spring classes) and receive a 25% refund

Mar. 15-20 (Mon.-Sat) Spring Break. No classes.

Apr. 2-3 (Fri.-Sat) Easter Holiday. No classes.

Apr. 6 (Tue.) Last day to drop a class (grade of DR) or withdraw (grade of W)

Apr. 29 (Thurs.) Study Day. No classes.

Apr 30-May 6 (Fri.-Thurs.) Final Exams May 6 (Thurs.) Spring classes end; Official last day of the term May 7-8 (Fri.-Sat.) Commencement Exercises May 10 (Mon.) Grades Due at 3 p.m.