The University of Texas, El Paso
Department of Computer Science
CS 1310: Intro to Computational Thinking
Spring 2023 Syllabus

Name of course: Intro. to Computational Thinking
Instructor: Kuldeep Singh
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Office: CCSB 3.0602
Office Hours:
- Monday 11:00am- 12:00 pm
- Wednesday 3:30pm- 4:30 pm

Office Hours Location: CCSB 3.0602

CRN: 24413	TA 2 for the CRN: 24413
Time and Location: • TR 1:30PM-2:50PM • Location: Liberal Arts Building (LART) 323 **TA 1 for the CRN: 24413** Name: Shams, Monjur Bin Email: mshams@miners.utep.edu Office: TBA Office hours: TBA	Name: Rahman, Asif Email: arahman3@miners.utep.edu Office: TBA Office hours: TBA

Course Focus

In the era of technology, Computational Thinking is an essential skill for students not only in computer science, but many other areas. Computing and information technologies permeate all aspects of our lives. They inspire how we connect with each other online through social networks and how we find information through search engines. Technologies also drive our physical world in how we navigate transportation systems and how we manage money on banking applications. Everyone should have the ability to not only use and interact with computing, but to also create and express themselves with computing. CT provides a systematic approach for solving real-work problems. This course is a hands-on introduction to create, invent, and build with computer programming.

No programming experience is necessary, and all backgrounds are welcome. Students will become exposed to high-level computational concepts and practices that include algorithms, data, parallelism, abstraction, and debugging. Assignments and projects will involve learning to program

using Python programming language. The creative and problem-solving strategies introduced in this course are applicable across many domains beyond information and computer sciences. There are no prerequisites.

Course Objectives

- Develop and utilize Computational Thinking concepts, practices, and perspectives to create, explore, and understand the world in new ways. In this class, you will engage with computational thinking through creative expression with computer programming. These concepts, practices, and perspectives are applicable beyond this class into other domains and interests beyond computing.
- Collect, examine, and interpret large datasets with Python
- Connect the ways that computing interacts with many parts of our lives
- Learn about opportunities that exist to extend and expand on the practices and activities in this class within and beyond UTEP

Required Materials

All materials (readings, assignments, quizzes) for class will be posted on the Blackboard learning management system (LMS). All students should have regular access to a computer and ensure your UTEP email account is working and that you have access to the Web and a stable web browser. Mozilla Firefox and Google Chrome are the most supported browsers for Blackboard; other browsers may cause complications with the LMS. When having technical difficulties, update your browser, clear your cache, or try switching to another browser. You will need to have or have access to a computer/laptop, a webcam, and a microphone. If you encounter technical difficulties beyond your scope of troubleshooting, please contact the *Help Desk as they are trained specifically in assisting with technological needs of students.*

Technology Requirements

This is an interactive, participatory, and hands-on class. We will discuss computational thinking topics every day of class, so **please bring your laptops to class every day**, *and not your phones.* If you do not own a laptop, or if using a laptop for this class is an issue, please reach out <u>ASAP</u> to come up with a solution. Please make sure all communications occurring during class time (including backchannel discussions) are strictly course-related. Laptop use is expected to be for class purposes only.

Programming Language

This course will introduce students to Python programming language:

Python 3.9.6

Python is a programming language supported by a vast passionate community of programmers and has become an essential tool for many engineers, scientists, and researchers from a variety of fields that include astronomy, journalism, social science, and web development. There are many free resources and open communities that support people to create, build, and invent with Python. We'll be using Python version 3.9 with the free development environment called Jupyterlab and the Anaconda 3 distribution of python and libraries.
Please note: There are different versions of Python. Your projects must be completed in Python 3.7+ or they will not be accepted. DO NOT USE PYTHON 2.

Course Assignments and Grading

Your semester grade will be based on a combination of exams, project, assignments, participation in class activities. The approximate percentages are as follows:
- Exam: 20%
- Semester Project: 30%
- Assignments: 25%
- Participation and Homework: 15%
- Quizzes: 10%

The nominal percentage-score to letter-grade conversion is as follows:
- 90% or higher is an 'A'
- 80-89% is a 'B'
- 70-79% is a 'C'
- 60-69% is a 'D'
- below 60% is an 'F'

Semester Project: You'll pick the dataset, do the data munging, ask the research questions, visualize the data, draw conclusions, and present your results. As part of this project, you will be required to evaluate and document your data sources and evaluate and extend the results of your project.

Assignments: These assignments will build skills in applying concepts learned in the class.

Reading and Homework: Students are required to complete weekly readings. Homework will allow students to understand concepts common to many programming languages and will help them develop the programming skills required to complete their semester projects.

Exam: Exam will help to evaluate the individual learning in the classroom. Students are required to complete weekly readings and homework posted on the Blackboard.

Quizzes: The quizzes will be taken randomly without any prior announcement to motivate students to participate in classroom activity and learn new skills.

Communication

I encourage you to ask questions and share reflections and feedback about the course. There are multiple ways to reach your peers and instructor for help and questions:

Office Hours: I will be available in person for office hours. I welcome you to attend.
Blackboard Forums: There is an optional weekly forum to use to troubleshoot or ask question.
Email: Please use ksingh2@utep.edu I typically respond within a day.

Late Work and Extensions

All assignments are due in Blackboard by 11:59 p.m. MT. Assignments submitted late will receive a *25% deduction for each day late.*

No extensions will be granted without a compelling reason due to circumstances beyond your control which must be documented by a healthcare provider letter, military activation order, obituary/memorial service notice, police/fire report, etc. If there is a campus emergency (e.g., weather, closure, etc.), I will send a message to the class with directions about assignments, deadlines, etc.

Participation and Attendance

Participation is an essential part of how you will learn in this class. It will be worth 10% of your grade. By actively participating in the class, you can develop your skills and understanding of course concepts. There will be no guaranteed class recording. The instructor encourages students to wear masks and practice social distancing as much as possible in class.
I understand that emergencies and disruptions happen, so if you must miss a class session, I ask that you consult the syllabus, the course link list (posted on Blackboard), and/or your peers to learn about what happened during class. It is still your responsibility to submit assignments and projects on time.

Openness and Disagreement

In the classroom, students and instructors need to feel comfortable sharing their opinions and questions openly, even when we disagree. Disagreement is expected but must be respectful and civil at all times. Students should feel welcome to share thoughts during class discussion without fear of being disparaged for their opinions. Like yourselves, I also have opinions, and I will attempt to surface my own biases when appropriate. These disagreements or differences of opinion will not impact grades, as long as students are respectful. I invite students to meet with me to discuss concerns and ideas about how to make our learning community a positive experience for all.

Syllabus Revisions

I reserve the right to change the syllabus at any time. If I do change the syllabus, I will let you know via the Blackboard announcement.

Drop Policy

I will not drop you from the course. However, if you feel that you are unable to complete the course successfully, please let me know and then contact the Registrar's Office to initiate the drop process. If you do not, you are at risk of receiving an "F" for the course.

COVID-19 PRECAUTIONS

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org

Standards of Conduct

You are expected to conduct yourself in a professional and courteous manner, as prescribed by the Handbook of Operating Procedures: Student Conduct and Discipline. All graded work

(homework, projects, exams) is to be completed independently and should be unmistakably your own work, although you may discuss your work with others in a general way. You may not represent as your own work material that is transcribed or copied from another source, including persons, books, or Web pages. **Plagiarism is a serious violation of university policy and will not be tolerated**. All cases of suspected plagiarism will be reported to the Dean of Students for further review. You are welcome and encouraged to work together in learning the material. However, whatever you submit must be your own. In other words, cutting and pasting or copying verbatim from another source be it a classmate, an online source or even something that the TA/instructor showed you is strictly forbidden.

> ➢ *Cite Your Sources:* If you worked with someone on an assignment, or if your submission includes quotes from a book, a paper, or a web site, you should clearly acknowledge the source.
> ➢ *Bottom line:* feel free to use resources that are available to you as long as the use is reasonable, and you cite them in your submission. However, copying answers directly or indirectly from solution manuals, web pages, or your peers is certainly forbidden.
> ➢ *Inspiration is free:* you may discuss homework assignments with anyone. You are especially encouraged to discuss in black board with your instructor and your classmates.
> ➢ *Plagiarism is forbidden:* the assignments and code that you turn in should be written entirely on your own. You should not need to consult sources beyond your textbook, class notes, posted lecture slides and notebooks, programming language documentation, and online sources for basic techniques.
> ➢ Copying/soliciting a solution to a problem from the internet or another classmate constitutes a violation of the course's collaboration policy and the honor code and will result in an F in the course and a trip to the honor council.
> ➢ *Do not search for a solution online:* You may not actively search for a solution to the problem from the internet. This includes posting to sources like StackExchange, Reddit, Chegg, etc.
> ➢ *StackExchange Clarification:* Searching for basic techniques in Python/Pandas/Numpy is totally fine. If you want to post and ask "How do I group by two columns, then do something, then group by a third column" that's fine. What you cannot do is post "Here's the problem my professor gave me. I need to convert Age in Earth years to Martian years and then predict the person's favorite color. Give me code!" That's cheating.
> ➢ *When in doubt, ask:* We have tried to lay down some rules and the spirit of the collaboration policy above. However, we cannot be comprehensive. If you have doubts about this policy or would like to discuss specific cases, please ask the instructor. *If it has not been described above, you should discuss it with us first*

Netiquettes

Please also pay attention to the following netiquettes:

- Always consider your audience. Remember that members of the class and the instructor will be reading any postings.
- Respect and courtesy must be provided to classmates and to instructor at all times. No harassment or inappropriate postings will be tolerated.
- Blackboard is not a public internet venue; all postings to it should be
- considered private and confidential. Whatever is posted in our online spaces is intended for classmates and instructor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space. If students wish to do so, they have the ethical obligation to first request the permission of the writer(s).

Accommodations Policy

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services.