**Course Information**
CS 5303 001
Computer Science I
Fall 2016

Monday & Wednesday
4:00pm-5:15pm
ATC 2.602

**Professor Contact Information**
Instructor: Dr. Eric William Becker
Telephone: (972) 883-3862
Email: Eric.Becker@utdallas.edu
Office: ECSS 3.407
Office Hours: Available the hour before class starts, starting August 29th
- Monday, 3:00pm to 4:00pm
- Tuesday, 4:30pm to 5:30 pm
- Wednesday, 3:00 pm to 4:00 pm
- Thursday, 4:30pm to 5:30 pm

**Course Pre-requisites, Co-requisites, and/or Other Restrictions**

ENCS majors only.

This course is intended for graduate students who wish to pursue a  degree in computer science.

**Course Description**
Computer science problem solving. The structure and nature of algorithms and their corresponding computer program implementation. Programming in a high level block-structured language (e.g., PASCAL, Ada, C++, or JAVA). Elementary data structures: arrays, records, linked lists, trees, stacks and queues.

**Updated Description**
First steps in Computer Science problem solving. Includes Programming in a high level block-structured languages (e.g., C, C++, JAVA, Python). Elementary data structures: arrays, records, linked lists, binary trees, stacks and queues. Introduction to Object-Oriented Concepts, basic Graphical User Interface, and built-in functionality.

For this semester, the class will be using C and C++.

**Student Learning Objectives/Outcomes**

Students will implement various programming assignments, including but not limited to:
- LO1. Beginning Computer Programming
- LO2: Using Files and Data Structures
- LO3: Beginning Object-Oriented Programming
- LO4: Object-Oriented Programming with Inheritance and Polymorphism

In addition, students will study and become aware of
- LO5: Beginning Graphical User Interface
- LO6: Languages with Built-In properties, functions, and data structures

*See Grading Breakdown*

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**Required Textbooks and Materials**

Textbooks:
- Stroustrup, *Programming: Principles and Practice Using C++*, 2nd Edition

Software:
- Microsoft Visual Studio-Students should be able to download a student copy from Microsoft until Dreamspark becomes available.

**Suggested Course Materials**

Textbooks:
- Foster & Foster, *C By Discovery*, 4th Edition
- Deitel & Deitel, *Java: How to Program*, 9th Edition or Later
- Campbell, Greis, Montojo, Wilson, *Practical Programming; An Introduction to Computer Science Using Python*

Software:
- Wing IDE
- Netbeans
- IDLE

**Additional Course Materials**
If a student programs for a hobby, and they have their own favorite interactive development environment or command line editor, that is fine. But any programs submitted must be able to be run by the grader.

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## Assignments & Academic Calendar

*As Instructor for this course, I reserve the right to change this calendar as I see fit.-Dr. Becker*

| Date | Cha. | Key Topics | Assignments |
|------|------|-----------|-------------|
| 22-Aug-16 | | Syllabus | |
| 24-Aug-16 | 1 | People and Programming | Program 1 Assigned |
| 29-Aug-16 | 2 | Hello World! | |
| 31-Aug-16 | 3 | Objects, Types, Values | |
| 5-Sep-16 | | Labor Day | |
| 7-Sep-16 | 4 | Computation | Program 1 Due, Program 2 Assigned |
| 12-Sep-16 | 5 | Errors | |
| 14-Sep-16 | 6 | Writing a Program | |
| 19-Sep-16 | 7 | Completing a Program | |
| 21-Sep-16 | 8 | Functions | Program 2 Due |
| 26-Sep-16 | | Review 1 | |
| 28-Sep-16 | | Midterm 1 | Midterm 1, Program 3 Assigned |
| 3-Oct-16 | 9 | Classes | |
| 5-Oct-16 | 10 | Input and Output Streams | |
| 10-Oct-16 | 11 | Customizing Input and Output | |
| 12-Oct-16 | 20 | Beginning Data Structures: Containers | Program 3 Due, Program 4 Assigned |
| 17-Oct-16 | 20 | Beginning Data Structures: Containers | |
| 19-Oct-16 | | Pointers and Referencing | |
| 24-Oct-16 | | Inheritance & Polymorphism | |
| 26-Oct-16 | | Inheritance & Polymorphism | Program 4 Due |
| 27-Oct-16 | | Last day to Drop | |
| 31-Oct-16 | | Review 2 | |
| 2-Nov-16 | | Midterm 2 | Program 5 Assigned |
| 7-Nov-16 | | Intermediate Data Structures: Linked Lists | |
| 9-Nov-16 | | Intermediate Data Structures: Binary Trees | |
| 14-Nov-16 | 12-16 | Graphical User Interface | |
| 16-Nov-16 | 12-16 | Graphical User Interface | Program 5 Due |
| 21-Nov-16 | | Fall Break | |
| 23-Nov-16 | | Fall Break | |
| 28-Nov-16 | | Java | |
| 30-Nov-16 | | Python | |
| 5-Dec-16 | | Review | |
| 7-Dec-16 | | Review | Program 6 Due |
| Unknown | | Final | |

**Grading Policy**
The semester will be scored on a scale from 0 to 100 points.

Grading Breakdown

| Assignment | Topic | LO# | Percentage |
|---|---|---|---|
| Program 1 | Setup and Basic Programming | 1 | 5% |
| Program 2 | Time for some Math | 1 | 5% |
| Program 3 | File Operations | 2 | 5% |
| Program 4 | Arrays, Pointers, and Object-Oriented | 3 | 5% |
| Program 5 | Inheritance and Polymorphism | 4 | 10% |
| Program 6 | Beginning Data Structures | 5 | 10% |
| Midterm 1 | Intermediate Programming | 1,2 | 20% |
| Midterm 2 | Object-Oriented Programming | 3,4 | 20% |
| Final Exam | Intermediate Data Structures, GUIs, and other Languages | 5,6 | 20% |
| Total | | | 100% |

**Course & Instructor Policies**

**Departmental Policies: Attendance**

As of Fall 2016, the Departmental Attendance Policy is in effect. Any student missing three consecutive class meetings will automatically Lose a Full Letter Grade. Any student missing four consecutive class meetings will automatically Fail the Class.

**Additional Attendance Policies:**

Students who miss class must have a valid reason for not attending class. The situation should be clearly described in an e-mail to Dr. Becker directly. For medical issues, a doctor's note is the preferred form of proof. If you are sick, please go to the doctor and also get a note. *Being late for class because of parking is not a valid excuse.*

Graduate students do have to travel to attend conferences, present papers, or defend their work. Should this occur during class time, and the instructor is informed in advance, then the attendance will be forgiven for those dates. ***Travelling without an acceptable academic justification will not be accepted.***

**Make-up Exams**:
- If a student sits any exam, this means the student accepts the responsibility for that exam. Once taken, the exam will not be given again, and no make-up will be scheduled.
- If a student cannot make the midterm exam, and the student brings adequate documentation of why they did not attend, (such as a doctor's note), then the Final Exam score will be substituted for the midterm.
- If a student informs the instructor they cannot make the Final Exam before it is given, then a make-up exam will be scheduled. This includes the University's 3 Final Exam in a Day policy. End of semester travel arrangements are not an acceptable reason for missing the Final Exam.
- If the student does miss the Final Exam, and the student brings adequate documentation of why they did not attend, (such as a doctor's note), a grade of Incomplete will be given and a make-up exam will be scheduled. If neither action is taken, the Final Exam will be a zero.

*A dental appointment or other non-emergency health situation is not an acceptable excuse for missing an examination you know about months in advance.*

### Extra Credit Policy
If a student truly has a situation where they must have an extra assignment, Dr. Becker will accept a written report about the history of Computer Science. This option will only be allowed once per student, and Dr. Becker has the right to choose the topic. Such a report is equal to 5 points of the semester total.

### Late Work
Programming Assignments typically will be due on a Wednesday. An assignment may be turned in one class period late **ONLY.** The deduction will be a flat 15 points on the assignment.

### Classroom Citizenship
Depending on the lecture, you may be asked to put away electronic devices, be called to be quiet, return to your seat, or to put backpacks away.

Also, inappropriate behavior is not acceptable.
*Formal Notice: No form of bias is permitted in this course, including the use of crude humor. Anyone harassing the instructor, grader, or fellow student with inappropriate comments will fail the course. This includes references written into computer programs, answering "joke" emails in class, or playing inappropriate videos. The instructor will decide what is inappropriate.*

**Ethical Behavior**
The first assignments in this class will be individual work. Once we move onto more complex programming, students will be allowed to work in cohorts. All exams will be individual work.

Plagiarism is the unacknowledged incorporation of another's work into work which a student offers for credit. Using source code of another person's program, even temporarily or from the web, is considered *plagiarism*. Example: Someone putting their name on someone else's programming assignment and turning it in is cheating.

Collusion is the unauthorized collaboration of another person in preparing work that a student offers for credit. Allowing another person to use your source code, even temporarily, is considered *collusion*. Example: Giving someone your code, and then that person turns it in as their own work, then the giver is also guilty of cheating.

***Dr. Becker's penalty for any form of dishonesty on an assignment is a score of -100 on the entire assignment.***

**Study Groups and Cohorts**
This is a graduate level course. Students are allowed to create a study group, but any such group must have a name, and a list of the members must be sent to Dr. Becker. Being a member of a study group does not mean that you can copy code. Study groups are good for discussing the problem, comparing the output, and checking each other's code for simple errors.

***No. The entire class cannot be a single study group***

**Comet Creed**

*This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:*

"As a Comet, I pledge honesty, integrity, and service in all that I do."

## UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

***The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.***

### UT Dallas Syllabus Policies and Procedures

The information below constitutes the University's policies and procedures segment of course syllabi and may be referenced by faculty members in their course syllabi.

Please use the following permanent address when referring to this page:
http://go.utdallas.edu/syllabus-policies

### Sharing Confidential Information

Students considering sharing personal information in email, in person, or within assignments or exams should be aware that faculty members and teaching/research assistants are required by UT Dallas policy to report information about sexual misconduct to the UT Dallas Title IX Coordinator. Per university policy, faculty have been informed that they must identify the student to the UT Dallas Title IX Coordinator. Students who wish to have confidential discussions of incidents related to sexual harassment or sexual misconduct should contact the Student Counseling Center (972-883-2527 or after hours 972-UTD-TALK or 972-883-8255), the Women's Center (972-883-8255), a health care provider in the Student Health Center (972-883-2747), the clergyperson (or other legally recognized religious advisor) of their choice, or an off-campus resource (i.e., rape crisis center, doctor, psychologist). Students who are sexually assaulted, harassed, or victims of sexual misconduct, domestic violence, or stalking, are encouraged to directly report these incidents to the UT Dallas Police Department at 972-883-2222 or to the Title IX Coordinator at 972-883-

2218. Additional information and resources may be found at http://www.utdallas.edu/oiec/title-ix/resources.

## Campus Carry

The University's concealed handgun policy is posted on the campus carry website: https://www.utdallas.edu/campuscarry/

## Technical Support

If you experience any issues with your UT Dallas account, contact the UT Dallas Office of Information Technology Help Desk: assist@utdallas.edu or call 972-883-2911.

UT Dallas provides eLearning technical support 24 hours a day/7 days a week. The services include a toll free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service. Please use this link to access the UTD eLearning Helpdesk: http://www.utdallas.edu/elearning/eLearningHelpdesk.html.

## Field Trip Policies, Off-Campus Instruction and Course Activities

Off-campus, out-of-state, foreign instruction/travel, and course-related field trip activities are subject to state law and University policies and procedures regarding travel and risk-related activities.

Detailed information regarding this policy, in accordance to *Texas Education Code*, Section 51.950, can be accessed at the UT Dallas Policy Navigator, http://policy.utdallas.edu/utdbp3023, and at http://www.utdallas.edu/administration/insurance/travel. Additional information is available from the office of the school dean.

## Student Conduct and Discipline

The University of Texas System (Regents' Rule 50101) and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UT Dallas online catalogs (http://catalog.utdallas.edu).

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the Student Code of Conduct, UTDSP5003 (http://policy.utdallas.edu/utdsp5003). Copies of these rules and regulations are available to students in the Office of Community Standards and Conduct, where staff members are available to assist students in interpreting the rules and regulations (SSB 4.400, 972-883-6391) and online at https://www.utdallas.edu/conduct/.

A student at the University neither loses their rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating its standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

## Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrates a high standard of individual honor in his or her scholastic work.

*Academic Dishonesty:* Academic dishonesty can occur in relation to any type of work submitted for academic credit or as a requirement for a class. It can include individual work or a group project. Academic dishonesty includes plagiarism, cheating, fabrication, and collaboration/collusion. In order to avoid academic dishonesty, it is important for students to fully understand the expectations of their professors. This is best accomplished through asking clarifying questions if an individual does not completely understand the requirements of an assignment.

Additional information related to academic dishonesty and tips on how to avoid dishonesty may be found here: https://www.utdallas.edu/conduct/dishonesty/.

## Copyright Notice

It is the policy of the University of Texas at Dallas to adhere to the requirements of the United States Copyright Law of 1976, as amended, (*Title 17, United States Code*), including ensuring that the restrictions that apply to the reproduction of software are adhered to and that the bounds of copying permissible under the fair use doctrine are not exceeded. Copying, displaying, reproducing, or distributing copyrighted material may infringe upon the copyright owner's rights. Unauthorized distribution of copyrighted material, including unauthorized peer-to-peer file sharing, may subject students to appropriate disciplinary action as well as civil and criminal penalties. Usage of such material is only appropriate when that usage constitutes "fair use" under the Copyright Act. For more information about the fair use exemption, see http://copyright.lib.utexas.edu/copypol2.html. As a UT Dallas student, you are required to follow UT Dallas' copyright policy (UTDPP1043 at http://policy.utdallas.edu/utdpp1043) and the UT System's policy, UTS107 at http://www.utsystem.edu/board-of-regents/policy-library/policies/uts107-use-copyrighted-materials.

## Email Use

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. All official student email correspondence will be sent only to a student's UT Dallas email address and UT Dallas will only consider email requests originating from an official UT Dallas student email account. This allows the University to maintain a high degree of confidence in the identity of each individual's corresponding via email and the security of the transmitted information. The University of Texas at Dallas furnishes each student with a free email account that is to be used in all communication with university personnel. The Office of Information Technology provides a method for students to have their UT Dallas mail forwarded to other email accounts. To activate a student UT Dallas computer account and forward email to another account, go to http://netid.utdallas.edu.

## Class Attendance

Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. Absences may lower a student's grade where class attendance and class participation are deemed essential by the instructor. In some courses, instructors may have special attendance requirements; these should be made known to students during the first week of classes.

## Withdrawal from Class

The administration at UT Dallas has established deadlines for withdrawal from any course. These dates and times are published in the Comet Calendar (http://www.utdallas.edu/calendar) and in the Academic Calendar http://www.utdallas.edu/academiccalendar). It is the student's responsibility to handle withdrawal requirements from any class. In other words, a professor or other instructor cannot drop or withdraw any student unless there is an administrative drop such as the following:

- Have not met the prerequisites for a specific course
- Have not satisfied the academic probationary requirements resulting in suspension
- Office of Community Standards and Conduct request
- Have not made appropriate tuition and fee payments
- Enrollment is in violation of academic policy
- Was not admitted for the term in which they registered

It is the student's responsibility to complete and submit the appropriate forms to the Registrar's Office and ensure that he or she will not receive a final grade of "F" in a course if he or she chooses not to attend the class after being enrolled.

## Student Grievance Procedures

Procedures for student grievances are found in university policy UTDSP5005 (http://policy.utdallas.edu/utdsp5005). In attempting to resolve any student grievance regarding disputes over grades, application of degree plan, graduation/degree program requirements, and thesis/and dissertation committee, adviser actions and/or decisions, evaluations, and/or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originated.

## Incomplete Grade Policy

As per university policy, incomplete grades may be given, at the discretion of the instructor of record for a course, when a student has completed at least 70% of the required course material but cannot complete all requirements by the end of the semester. An incomplete course grade (grade of 'I') must be completed within the time period specified by the instructor, not to exceed eight (8) weeks from the first day of the subsequent long semester. Upon completion of the required work, the symbol 'I' may be converted into a letter grade (A through F). If the grade of Incomplete is not removed by the end of the specified period, it will automatically be changed to F.

## Accessibility Services

It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the Office of Student AccessAbility (OSA) is required. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with your professor and allow one week advance notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact OSA for a confidential discussion. OSA is located in the Student Services Building, SSB 3.200. They can be reached by phone at 972-883-2098, or by email at studentaccess@utdallas.edu.

## Religious Holy Days

The University of Texas at Dallas will excuse a student from class or other required activities, including examinations and travel time for the observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, of the *Texas Tax Code*.

Students are encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment.

Excused students will be allowed to take missed exams or complete assignments within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the President of UT Dallas or from the President's designee. The chief executive officer or designee must take into account the legislative intent of *Texas Education Code* 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

## Resources to Help You Succeed

The Office of Student Success operates the Student Success Center (SSC, http://www.utdallas.edu/studentsuccess), which offers assistance to students in the areas of writing, mathematics, communication, multiple science fields, reading, study skills, and other academic disciplines. These services are available through individual and small group appointments, workshops, short courses, and a variety of online and instructional technologies. All students enrolled at UT Dallas are eligible for these services.

The **Math Lab** gives short-term and semester long support for a variety of introductory and advanced mathematics courses. Students may drop in to visit with a math tutor on a regular basis. Comet card is required.

The **Writing Center** offers a collaborative learning environment for one-to-one and small group assistance with general and advanced writing assignments and overall writing skills. Scheduling

an appointment is strongly recommended, but walk in appointments are possible if a tutor is available.

The **Peer Tutoring** program offers free tutoring assistance in multiple locations for many of the historically challenging undergraduate subjects at UT Dallas. Tutoring sessions, offered every weekday on a drop-in basis, are one-on-one or in a small group format. The sessions are designed to meet students' individual questions and needs related to course/subject concepts. All peer tutors are current UT Dallas students who made an A- or better in the course and have a strong faculty/staff recommendation. Students should check the Student Success Center website each semester for subject offerings and session times.

The **Peer-Led Team Learning (PLTL)** program provides an active, engaged learning experience for students who meet in small groups once a week with a Peer Leader who helps guide them through a potentially difficult gateway course. Students that attend sessions regularly typically earn a half to a whole letter grade higher than students that do not participate in the PLTL program.

**Supplemental Instruction (SI)** provides free, peer-facilitated weekly study sessions for students taking historically difficult courses. SI sessions encourage active, collaborative learning based on critical thinking and transferable study skills. SI leaders attend lectures, take notes, and read assigned material just like the enrolled students. Students should check the SSC website for subject and session times.

The **Communication Lab (CommLab)** offers one-on-one and group consultations where you will gain practical feedback for improving oral and group presentations.

**Success Coaches** are available for individual student appointments to discuss study skills, time management, note taking, test taking and preparation, and other success strategies.

The Student Success Center's main office is located in the McDermott Library Building and can be contacted by calling 972-883-6707 or by sending an email to ssc@utdallas.edu.

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