

## ***CS 4349 – Advanced Algorithm Design and Analysis***

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### **Course Information**

CS 4349 Advanced Algorithm Design and Analysis  
Spring 2016, honors section

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### **Professor Contact Information**

Dr. James Willson  
jkw053000@utdallas.edu  
Office Hours: Th 1:30 – 3:30, and by appointment; ECSS 4.608

Teaching Assistant TBA

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

Prerequisites: CS 3305 with a grade of C or better, and (CE/CS/SE/TE 3345)

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### **Course Description**

**Advanced Algorithm Design and Analysis** (3 semester credit hours) Asymptomatic analysis, recurrences, and graph algorithms. Algorithm design techniques such as greedy method, dynamic programming, and divide-and-conquer. Issues from computational complexity. Course emphasizes a theoretical approach.

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### **Student Learning Objectives/Outcomes**

Ability to use asymptotic notations, solve recurrences, perform algorithm analysis  
Ability to design, analyze, and prove correctness of algorithms based on Divide-and-Conquer techniques  
Ability to design, analyze, and prove correctness of algorithms based on Greedy techniques  
Ability to design, analyze, and prove correctness of algorithms based on Dynamic Programming techniques  
Ability to design, analyze and prove correctness of graph algorithms

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### **Required Textbooks and Materials**

Introduction to Algorithms, 3rd ed., Cormen, Leiserson, Rivest, and Stein. MIT Press

## **Assignments & Academic Calendar**

Midterm Exam (date TBA)

Final exam as scheduled by the registrar

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## **Grading Policy**

*Homework: 10%*

*Exams: 90%*

Grading will be on a curve, and will not be decided until all grades are in.

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## **Course & Instructor Policies**

Class attendance is mandatory. Three consecutive unexcused absences will result in a one letter drop of the course grade. Four consecutive unexcused absences will result in a grade of F for the course. Excused absences must be coordinated with the instructor prior to the absence, except for emergencies. A student who misses a class is still responsible for any handouts, announcements, reading material and contents of the missed class.

All make-up exams are scheduled and given at the discretion of the instructor.

Make-up exams are only given to those students who coordinate the missing of an exam prior to the originally scheduled exam date and time, or for an emergency.

All assignments must be submitted online via eLearning. Unless otherwise specified in the assignment, the submission must be a single pdf file. This is the only acceptable method of submission. All submissions can be revised before the deadline. Late work will not be accepted.

All submissions must be your own work. Solutions copied from the internet, instructor's manual, etc. will be given zero credit.

No extra credit will be given.

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## **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.***