

# CS46101 Section 600/CS 56101 Section 002 Design and Analysis of Algorithms

Spring 2010

*Department of Computer Science  
Kent State University at Stark*

MW: 6:55pm-8:10pm – Room MH #303

**Prerequisite:** MATH 12003 and minimum C (2.0) grade in CS 33001

**Credits:** 3

**Instructor:** [Dr. Angela Guercio](http://www.personal.kent.edu/~aguercio)

**Office Phone:** (330) 244-3424  
(KSU ext. 53424)

**Office location:** MH 424

**Home Page:** <http://www.personal.kent.edu/~aguercio>

**E-Mail:** [aguercio@kent.edu](mailto:aguercio@kent.edu)

**Office hours** 11:00am – 12:00pm MW, 4:00pm-6:00pm MW, or by appt.

**Text:**

Introduction to Algorithms, 3/E, Cormen, Leiserson, Rivest and Stein, The MIT Press, 2009, ISBN: 978-0-262-03384-8.

**Class Webpage:**

<http://www.personal.kent.edu/~aguercio/Spring10/CS46101Sp10.html>

- all important class information will be posted on the class webpage, readings, assignments, notes, deadlines, cancellations, etc.. ***Check it regularly!***

**Last day to drop:**

Sunday, January 31 (without W grade);  
Sunday, April 4 (with W grade).

**Exams**

Exam 1: Mon, Feb 22

Exam 2: Mon, March 22

Final Exam: 6pm-8pm, Wed., May 12

**Catalog course description:** Introduction to algorithmic concepts, design and complexity analysis of algorithms, searching, sorting, graphs, geometric, algebraic and parallel algorithms.

**Key concepts:** divide-and-conquer, sorting, dynamic programming, greedy algorithms, graph algorithms, NP-completeness.

**Expected outcomes:** students completing this course should be able to design appropriate algorithms for complex problems and analyze the complexity of algorithms.

### Grading

Assignments (3 - 5)	40%
Midterm Exams (2)	40%
Final Exam	20%

I reserve the right to change the weighting and number of assignments and add Pop Quizzes.

The following grading scale will be used to calculate final grades (subject to curving if class grades on exams are substantially below expected):

Total percentage earned	Grade	Total percentage earned	Grade
93 - 100%	A	80 - 82%	B-
90 - 92%	A-	70 - 79%	C
87 - 89%	B+	66 - 69%	D
83 - 86%	B	65% and below	F

### Course policy

#### (1) Class participation and preparation

- Class participation and regular attendance are expected. If a student misses a class, the student is responsible for bringing herself/himself up-to-date on class material and assignments. If you miss more than 4 classes without a documented reason or without making prior arrangements with me, your final grade will be dropped one grade (A to B, B+ to C+ and so on).
- All students are expected to read the assigned chapters prior to coming to class.

#### (2) Exams

- Exams will be based on the combination of: material covered in lectures, the assigned reading from the textbooks and material covered in the notes.
- All exams are closed books and closed notes.

#### (3) Homework assignments

- All homework assignments are due at the beginning of class on the specified date. An assignment turned in one day late will get a 10% penalty, two days late will get a 20% penalty, etc. Assignments turned in after the beginning of class on the due date will be counted as one day late and will receive a 10% penalty.
- All assignments must be individually and independently completed. Should two or more students turn in substantially the same solution or program, in the judgment of the instructor, the solution will be considered a group effort. All involved in a group effort homework will receive a zero grade for that assignment.
- No late assignment will be accepted after the assignment is graded and returned.
- A printed copy of each homework assignment must be turned (NO HAND WRITTEN COPY ACCEPTED). If you must miss a class when the assignment is

due, you may e-mail a copy of the assignment in order not to have a late grade, but your assignment will only be graded when you have turned in an identical, printed copy.

- You may discuss the interpretation of the assignment with your classmates, however you may not discuss possible solutions.

(4) Make-up exams

- Make-up exams will only be given in case of serious need and only when the instructor is notified prior to the exam time. If this is not done, the grade is automatically 0 for that exam.
- Written verification for the student's inability to take an exam will be required.

(5) Class cancellation

- If I need to cancel class for any reason, I will try to put an announcement on the course web page as early as possible.

### **Course Withdrawal**

If you are considering withdrawing from this course, please inform your instructor and consult with a staff member in the Student Services Office, 134 Main Hall. Withdrawal from a course can affect financial aid, student status, or progress within your major. For withdrawal deadlines, please refer to [http://www.registrars.kent.edu/home/TermUpdate/sche\\_adj.htm](http://www.registrars.kent.edu/home/TermUpdate/sche_adj.htm).

### **Academic Honesty Policy**

When assignments must be individually and independently done, if some students turn in substantially the same solution or program of another student, in my judgment, the solution will be considered a group effort. All involved in the group effort homework will receive a zero grade for that assignment. Policy on academic dishonesty involving programming can be found at <http://www.personal.kent.edu/~aguercio/AcademicDishonestyPolicy.pdf>. Use of the intellectual property of others without attributing it to them is considered a serious academic offense. Cheating or plagiarism will result in a failing grade for the work or for the entire course. Repeat offenses result in dismissal from the University. University guidelines require that all infractions be reported to the Student Conduct Officer on our campus.

### **Students with Disabilities**

Kent State University recognizes its responsibility for creating an institution atmosphere in which students with disabilities can succeed. In accordance with University Policy Subpart E...104.44, if you have a documented disability, you may request accommodations to obtain equal access in this class. Please contact the disability coordinator on campus, Kelly Kulick in Student Accessibility Services, located in the Student Success Center, lower level of the Campus Center, phone (330)-244-5047, or [kkulick@kent.edu](mailto:kkulick@kent.edu). After your eligibility for accommodations is determined, you will be given a letter which, when presented to instructors, will help us know best how to assist you.

### Classes Canceled – Campus Closings

Announcements of class cancellations and/or campus closings will be made on the campus home page. In the case of an emergency, weather-related or otherwise, please check the web page at [stark.kent.edu](http://stark.kent.edu) for information on the buildings and times of the closing. While information may be broadcast by radio and television, this should be confirmed by the web page, which is the official announcement of the campus and which will be the information used to determine issues related to student attendance, rescheduling of tests, and other concerns.

### Conduct

Students and faculty behavior at the Stark Campus is governed by the guidelines set forth in *The Digest of Rules and Regulations*. That document can be found in the University telephone directory. Information can be found at the Office of Judicial Affairs at <http://www1.kent.edu/emsa/JudicialAffairs.cfm>.

### Recycling

KSU Stark Campus recycles! Recycling saves energy, which is currently generated by expensive and vanishing fossil fuels. Recycling one aluminum can saves enough energy to run a TV for three hours! Please take a few seconds to separate your trash. Aluminum cans and plastic and glass bottles may be placed in the blue recycling bins, and all types of paper may be placed in the blue recycling trash cans. All other waste may be placed in the black, brown or gray trash cans.

### Emergency

In case of an emergency please contact the security on campus.

**Security phone on campus:** #53123

**Security cell phone** (330) 705-0430 or, of course, 911.

I recommend that you program into your cell phone the previous numbers.

### Tentative Outline of the Course

<b>Week 1</b>	Introduction Growth of Functions
<b>Week 2</b>	Divide-and-Conquer
<b>Week 3</b>	Heapsort Quicksort
<b>Week 4</b>	Linear Time Sorting
<b>Week 5</b>	Review of Data Structures Hash Tables
<b>Week 6</b>	Binary Search Trees Red-Black Trees
<b>Week 7</b>	Dynamic Programming
<b>Week 8</b>	Greedy Algorithms
<b>Week 9</b>	B-Trees
<b>Week 10</b>	Graph Algorithms

<b>Week 11</b>	Minimum Spanning Trees
<b>Week 12</b>	Matrix Operations
<b>Week 13</b>	String Matching
<b>Week 14</b>	NP-Completeness
<b>Week 15</b>	Approximation Algorithms

### **Important Dates to Remember**

- Last day to drop the class is Jan 31 (without W grade) or April 4 (with W grade)
- Exam 1 is Monday, Feb. 22
- Exam 2 is Monday, March 22
- Final Exam is Wednesday, May 12 (6:00 pm – 8:00pm)

**Spring Recess:** March 29 – April 4, 2010

**Classes End:** May 8, 2010