

**Texas A&M University-Texarkana**  
**CS-310 Analysis of Algorithms / EE-310 Algorithms Analysis**  
**Spring 2011**

**Class Meeting:**

**12:00-2:45pm, Thursday**

**Instructor:**

**Dr. Igor Aizenberg**

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**Office hours:**

Tuesday, Wednesday: 11-00a – 4-00p

**Class Web Page:** <http://www.eagle.tamut.edu/faculty/igor/CS-EE-310.htm>

**The purpose of this course is:**

- to touch upon various branches of the study of algorithms. This includes data structures, algorithms, algorithm design, algorithm analysis, and complexity theory. Upon completion of this course, students will be able to analyze the efficiency/complexity of algorithms, to design efficient algorithms for solving different problems, to prove the correctness of algorithms.

**Text Book (optional):**

T. H. Cormen, C.E. Leiserson, R. L. Rivest and C. Stein "Introduction to Algorithms", 3rd Edn. The MIT Press, McGraw-Hill Book Company, 2009 ISBN 978-0-262-03384-8 (hardcover) - ISBN 978-0-262-53305-8 (pbk)

**Tests (open book, open notes):**

**Test 1: February 24, 2011**

**Test 2: March 31, 2011**

**Test3: May 5, 2011**

**Grading Method**

Homework and preparation: 25%

Test 1: 25%

Test 2: 25%

Test 3: 25%

**Grading Scale:**

90%+ → A

80%+ → B

70%+ → C

60%+ → D

less than 60% → F

## COURSE OUTLINE AND CLASS SCHEDULE

Week	#	Date	Topics	Text Book and Lecture Notes References
1	1	Jan 20, 2011	Introduction. Algorithms as technology.	Sections 1.1, 1.2; "Lecture-1"
2	2	Jan 27, 2011	Designing algorithms. Pseudocode. Example: Insertion Sort. Analyzing algorithms.	Sections 2.1-2.3; "Lecture-2"
3	3	Feb 3, 2011	Analyzing Algorithms. Types of Algorithms. Efficiency	Sections 2.2, 2.3, 3.1; "Lecture-3"
4	4	Feb 10, 2011	Growth of functions. Asymptotic notation.	Section 3.1; "Lecture-3", "Lecture-4"
5	5	Feb 17, 2011	Solving problems	"Lecture-5", Notes
6	6	<b>Feb 24, 2011</b>	<b>Test 1</b>	
7	7	Mar 3, 2011	Standard notations and common functions.	Section 3.2; "Lecture-4"
8	8	Mar 10, 2011	Recurrences.	Section 4.1, 4.2; "Lecture-6", "Lecture-7"
9	9	Mar 24 2011	Recurrences. Solving problems.	"Lecture-7", Notes
10	10	<b>Mar 31 2011</b>	<b>Test 2</b>	
11	11	Apr 7 2011	Roots of unity. Discrete Walsh and Fourier Transforms (DWT and DFT).	Section 30.2; "Lecture-8"
12	12	Apr 14 2011	Fast Walsh Transform (FWT) algorithm	"Lecture-9"
13	13	Apr 21 2011	Fast Fourier Transform (FFT) algorithm	Section 30.3; "Lecture-10"
14	14	Apr 28 2011	Applications of FFT and FWT	Section 30.3, Notes
15	15	<b>May 5 2011</b>	<b>Test 3</b>	

**Disability Accommodations** Students with disabilities may request reasonable accommodations through the A&M-Texarkana Disability Services Office by calling 903-223-3062.

**Academic Dishonesty** Academic honesty is expected of students enrolled in this course. Cheating on examinations, unauthorized collaboration, falsification of research data, plagiarism, and undocumented use of materials from any source, constitute academic dishonesty, and may be grounds for a grade of "F" in the course and/or disciplinary actions." For additional information see the university policy manual.

**Statement on email usage** Upon application to Texas A&M University-Texarkana an individual will be assigned an A&M-Texarkana email account. This email account will be used to deliver official university correspondence. Each individual is responsible for information sent and received via the university email account and is expected to check the official A&M-Texarkana email account on a frequent and consistent basis. Faculty and students are required to utilize the university email account when communicating about coursework.