

Introduction to Algorithms

COSC 381-0001

Instructor:	Daniel Ray	Semester:	Spring 2008
Office:	231(A) Darden Hall	Lecture:	MWF 12:00-12:50
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E-mail:	dar5p@mcs.uvawise.edu	Credit Hours:	3.00
Emergency Phone:	328-0184		
Prerequisites:	COSC 281		
Office Hours:	MWF: 10-11:00, 1-3		

Course Description

This course introduces the foundational concepts in the field of computational algorithms. The course covers topics that include sorting and searching, recursion, analysis of complexity, algorithm paradigms, NP complete problems, and complexity metrics.

Objectives

Upon completion of this course students will:

- know several existing algorithms and be able to analyze their efficiency,
- be able to design an algorithm to solve a moderately difficult computational problem and analyze the efficiency of the algorithm,
- improve analytical skills and the ability to think rigorously,
- and improve programming skills.

Textbook and Supplies

Introduction to the Design and Analysis of Algorithms, 2/E. Levitin. Addison Wesley. ISBN: 0-321-35828-7

Grading

Course Grade	Approximate % of Grade
Tests	50
Final Exam	35
Homework	10
In-class Participation	5

Grading Scale

90-100%
80-89%
70-79%
60-69%
less than 60%

Letter Grade

A
B
C
D
F

Extra Credit and Tutoring

Extra credit will not generally be made available.

As always, for tutoring assistance contact Student Support Services at 328-0177, or see your instructor for additional assistance.

Course Policies**Student Conduct In-Class Policy**

In accordance with the Academic Code of Conduct described in the Student Handbook, behavior that exceeds the normal rights of students to question and discuss elements of the educational process relative to subject content with the instructor and/or amongst themselves will not be tolerated. Appropriate action will be taken by the instructor to address any such behavior.

Children In-Class Policy

Only in extreme cases are children allowed in classroom or laboratory facilities, and then only with the approval of the instructor prior to class.

Electronic Devices In-Class Policy

Cellular phones, pagers, music players (digital and otherwise), and similar devices are prohibited in the classroom and laboratory facilities. Calculators and computing devices are prohibited during examinations and quizzes, unless specified. Reasonable laptop-size computers or handheld computers may be used in lecture for the purpose of taking notes.

Examination and Quiz Policy

No make-up exams will be provided unless arrangements have been made with the instructor prior to the date of the exam. Make-up exams must be taken when scheduled.

Preparing for Examinations:

There is no substitute for the preparative nature of coming to and participating in class. In addition to this, students are encouraged to complete additional exercises at the end of each chapter in the class text, and to contact the instructor on an individual basis if further instruction on a specific topic is required (see office hours above).

Absent or Late to Class

It is your responsibility to obtain course notes, handouts, and laboratory assignments should you be late to or absent from class.

Appeals Policy

To appeal a grade, send an e-mail to your instructor's e-mail address within ONE WEEK of the grade having been received. Overdue appeals will NOT be considered. Appeals MUST be in written form and submitted to the instructor via e-mail and should explain to the best of your ability what error or errors you think have been made as well as provide supporting evidence.

Academic Misconduct Policy

Students are expected to at all times uphold the school's standard of conduct relating to academic honesty. Students assume full responsibility for the content and integrity of the academic work they submit. The guiding principle of academic integrity shall be that a student's submitted work, examinations, reports, and projects must be that of the student's own work and none other's. Students shall be guilty of violating the honor code if they:

1. Represent the work of others as his/her own
2. Use or obtain unauthorized assistance in any academic work
3. Give unauthorized assistance to other students
4. Modify, without instructor approval, and examination, paper, record, or report for the purpose of obtaining additional credit
5. Misrepresent the content of submitted work

The penalty for violating the honor code is severe. **Any student caught violating the honor code is subject to receive a failing grade for the course and will be reported to the Office of Student Affairs.**

If a student is unclear about whether a particular situation might constitute an honor code violation, the student should meet with the instructor to discuss the situation.

For this class, it is permissible and encouraged that students have general discussions and interactions amongst themselves concerning computing techniques. However, each person must develop his or her own specific solutions to the assigned programming projects. Students may not "work together" on individual graded assignments (this excludes grouped work). Prohibited activities include but are not limited to:

- Sharing homework solutions
- Examining someone else's solutions
- Allowing someone else to examine your solutions
- Writing or dictating solutions for someone else

- Getting someone else to write your solutions or dictate solutions to you

Collaboration of the type described above constitutes cheating.

If you need help on an assignment contact your instructor, NOT other classmates.

Attendance and Participation Policies

Attendance Policy

Attendance is mandatory for this class.

Participation Policies

Participation consists of three parts:

1. Completion of in-class assignments
2. Participation in in-class discussions

Disability Policy

If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment to talk with me as soon as possible. My office location and hours are listed at the top of this syllabus.

Lecture, Project, and Examination Schedule

- You are expected to read each assigned reading prior to the lecture.
- All assignments are due at the beginning of class on the due date.
- **No assignments will be accepted late! Anything not handed in on time will be graded as a zero.**
- There will be programming assignments due almost every week.

Weekly Schedule

The weekly schedule for this class is as follows *:

Week:	Reading:	Topic:
1	Chapters 1 & 2	Introduction and Fundamentals
2	Chapter 3	Brute Force Method
3	Chapter 4	Divide and Conquer
4	Chapter 5	Decrease and Conquer
5	Chapter 6	Transform and Conquer
6	Chapter 7	Space and Time Tradeoffs
7 & 8	Chapter 8	Dynamic Programming
Fall Break		
9 & 10	Chapter 9	Greedy Technique
11	Chapter 10	Iterative Improvement
12	Chapter 11	Limitations of Algorithm Power
13	Chapter 12	Coping with the Limitations of Algorithm Power
14 & 15	Selected Topics	**
Final Exam	Friday, 5/9	11:00am

*The specific activities listed on the weekly schedule are subject to change. Changes will be noted in class.