

Syllabus – CS 4/56101

Design & Analysis of Algorithms

Summer 2017

Time	Wednesday and Friday, 12:00 p.m. – 2:30 p.m.
Place	Math and Computer Science Building, Room 106
Website	http://www.cs.kent.edu/~aleitert/daa/
Instructor	Arne Leitert aleitert@cs.kent.edu http://www.cs.kent.edu/~aleitert/
Office Hours	By arrangement Room 352, Math and Computer Science Building

Course Description

This course is an introductory undergraduate/graduate course on the design and analysis of algorithms. The goal is to introduce a number of important algorithm design techniques as well as basic algorithms that are interesting both from a theoretical and also practical point of view.

Prerequisites

CS 23022 – Discrete Structures
CS 23001 – CS II Data Structures
MATH 12003 – Analytic Geometry and Calculus II

Textbook (optional)

Introduction to Algorithms, by Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein, 3rd edition, MIT Press, 2009
<https://mitpress.mit.edu/books/introduction-algorithms>

Topics (in various depth)

- Binary Search
- Computational Model and Runtime Analysis
- Insertion, Merge, and Quicksort
- Heaps and Priority Queues
- Linear Time Sorting
- Red-Black, AVL, and B-Trees
- Hash Tables
- Graphs
 - Basic Algorithms
 - DAGs
 - Minimum Spanning Tree
 - Shortest Path (Dijkstra)

Course Requirements

First Exam	33.3 %	June 30, during class
Second Exam	33.3 %	July 19, during class
Third Exam	33.3 %	August 4, during class

Exam dates may change.

Grading Scale

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D
% Required	90	86	81	77	72	68	63	59	54	50

Registration Requirement

The official registration deadline for this course is **June 14, 2017**. University policy requires all students to be officially registered in each class they are attending. Students who are not officially registered for a course by published deadlines should not be attending classes and will not receive credit or a grade for the course. Each student must confirm enrolment by checking his/her class schedule (using Student Tools in FlashFast) prior to the deadline indicated. Registration errors must be corrected prior to the deadline. The last day to withdraw from any or all courses that meet the full semester before grade of "W" is assigned is **June 18, 2017**. The last day to withdraw is **July 16, 2017**.

Student Accessibility Policy

University Policy 3342-3-01.3 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Student Accessibility Services (contact 330-672-3391 or visit www.kent.edu/sas for more information on registration procedures).

Student Cheating and Plagiarism

Condensed Version. For the complete policy and procedure, go to www.kent.edu/policyregister and search for policy 3342-3-01.8, or see <http://www.kent.edu/policyreg/chap3/3-01-8.cfm> or <http://www.kent.edu/policyreg/chap3/upload/3342.3.01.8.pdf>

Cheating and plagiarism constitute fraudulent misrepresentation for which no credit can be given and for which appropriate sanctions are warranted and will be applied. The university affirms that acts of cheating and plagiarism by students constitute a subversion of the goals of the institution, have no place in the university and are serious offenses to academic goals and objectives, as well as to the rights of fellow students.

"Cheat" means to intentionally misrepresent the source, nature, or other conditions of academic work so as to accrue undeserved credit, or to cooperate with someone else in such misrepresentation. Cheating includes, but is not limited to:

1. Obtaining or retaining partial or whole copies of examinations, tests or quizzes before these are distributed for student use;
2. Using notes, textbooks or other information in examinations, tests and quizzes, except as expressly permitted;
3. Obtaining confidential information about examinations, tests or quizzes other than that released by the instructor;
4. Securing, giving or exchanging information during examinations;
5. Presenting data or other material gathered by another person or group as one's own;
6. Falsifying experimental data or information;
7. Having another person take one's place for any academic performance without the specific knowledge and permission of the instructor;
8. Cooperating with another to do one or more of the above;
9. Using a substantial portion of a piece of work previously submitted for another course or program to meet the requirements of the present course or program without notifying the instructor to whom the work is presented; and

10. Presenting falsified information in order to postpone or avoid examinations, tests, quizzes, or other academic work.

Plagiarize means to take and present as ones own a material portion of the ideas or words of another or to present as ones own an idea or work derived from an existing source without full and proper credit to the source of the ideas, words, or works. As defined, plagiarize includes, but is not limited to:

- a. The copying of words, sentences and paragraphs directly from the work of another without proper credit;
- b. The copying of illustrations, figures, photographs, drawings, models, or other visual and nonverbal materials, including recordings of another without proper credit; and
- c. The presentation of work prepared by another in final or draft form as one's own without citing the source, such as the use of purchased research papers.

Academic Sanctions (From Section D)

The following academic sanctions are provided by this rule for offences of cheating or plagiarism. Kent campus instructors shall notify the department chairperson and the student conduct office each time a sanction is imposed. Regional campus instructors shall notify the regional campus dean and the student conduct officer each time a sanction is imposed. Regional campus student conduct officer shall notify the Kent student conduct office each time a sanction is imposed by a regional campus Instructor. The following academic sanctions are provided by this rule for offences of cheating or plagiarism. In those cases the instructor may:

1. Refuse to accept the work for credit; or
2. Assign a grade of "F" or zero for the project, test, paper, examination or other work in which the cheating or plagiarism took place; or
3. Assign a grade of "F" for the course in which the cheating or plagiarism took place; and/or;
4. Recommend to the department chair or regional campus dean that further action specified in the rule be taken. The department chairperson or regional campus dean shall determine whether or not to forward to the academic dean or to the vice president for the extended university a recommendation for further sanction under this rule.

Procedures for invoking sanctions. (From Section E)

- (1) Academic administrative procedures pertaining to paragraph (D)(1)(a) of this rule. In the event that an instructor determines that it is more probable than not that a student in a course or program under the instructor's supervision has presented work for university credit which involves an act of cheating, plagiarism or cooperation in either, then the instructor shall:
 - (a) Inform the student as soon as is practical, in person or by mail, of the belief that an act of cheating or plagiarism has occurred. If the student cannot be reached in a reasonable period of time, the instructor may proceed with sanctions, notifying the student in writing as promptly as possible of the belief and the procedural steps the instructor has taken.
 - (b) Provide the student an opportunity to explain orally, in writing, or both, why the student believes the evaluation of the facts is erroneous.
 - (c) If the explanation is deemed by the instructor to be inadequate or if no explanation is offered, the instructor may impose one of the academic sanctions listed in paragraph (D)(1)(a) of this rule. Where appropriate, the instructor may recommend the imposition of academic sanctions listed in paragraph (D)(1)(b) of this rule. In addition, the instructor may refer the matter to the dean of the college, campus, or school in which the student is enrolled for imposition of academic sanctions listed in paragraph (D)(1)(b) of this rule.
 - (d) The instructor shall notify the office of judicial affairs of the circumstances and action taken. Such notification will be used as background information in the event that formal conduct charges are initiated against the student.
 - (e) The instructor shall inform the student in writing of the right to appeal, and the procedure to follow.

- (f) The instructor shall keep the evidence of cheating or plagiarism in a secure place and provide it upon request to any appeals officer or the conduct officer. The instructor shall provide copies on request to the student at the student's expense.
- (g) The instructor shall cooperate with academic and student conduct personnel in any appeal of the decision, and/or in adjudication of any disciplinary proceedings.