

 FLORIDA ATLANTIC UNIVERSITY	COURSE CHANGE REQUEST Undergraduate Programs		UUPC Approval <u>10-11-21</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department Electrical Eng. and Comp Science College Engineering and Computer Science		
Current Course Prefix and Number COT 4400		Current Course Title Design and Analysis of Algorithms	
<i>Syllabus must be attached for ANY changes to current course details. See Checklist. Please consult and list departments that may be affected by the changes; attach documentation.</i>			
Change title to: Change prefix From: _____ To: _____ Change course number From: _____ To: _____ Change credits* From: _____ To: _____ Change grading From: _____ To: _____ Change WAC/Gordon Rule status** Add <input type="checkbox"/> Remove <input type="checkbox"/> Change General Education Requirements*** Add <input type="checkbox"/> Remove <input type="checkbox"/> <small>*Review Provost Memorandum</small> <small>**WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See WAC Guidelines.</small> <small>***General Education criteria must be indicated in syllabus and approval attached to this form. See GE Guidelines.</small>		Change description to: See attached syllabus for new course description. Change prerequisites/minimum grades to: COP 3530 or COP 3410 with "C" or better Change corequisites to: Change registration controls to: Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).	
Effective Term/Year for Changes: Spring 2022		Terminate course? Effective Term/Year for Termination:	
Faculty Contact/Email/Phone Hanqi Zhuang, zhuang@fau.edu, 561-297-3413			
Approved by Department Chair _____ College Curriculum Chair <u>Dan Meeroff</u> College Dean <u>Fred Bloetscher</u> UUPC Chair <u>Dan Meeroff</u> Undergraduate Studies Dean <u>Edward Pratt</u> UFS President _____ Provost _____		Date 9/23/2021 <u>10-4-21</u> <u>10-4-21</u> <u>10-11-21</u> <u>10-11-21</u> _____ _____	

Email this form and syllabus to mjenning@fau.edu seven business days before the UUPC meeting.

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1. Course title/number, number of credit hours	
Design and Analysis of Algorithms - COT 4400	3 credit hours
2. Course prerequisites, corequisites, and where the course fits in the program of study	
Prerequisite: COP 3530 or COP 3410 with "C" or better	
3. Course logistics	
Term: TBD Class location and time:	
4. Instructor contact information	
Instructor's name Office address Office Hours Contact telephone number Email address	TBD
5. TA contact information	
TA's name Office address Office Hours Contact telephone number Email address	TBD
6. Course description	
Mathematical analysis of algorithm complexity; algorithm design techniques (such as divide and conquer, greedy and dynamic programming) in the context of problem domains such as sorting and optimization problems; graph algorithms; data structures (heaps, priority queues, hash tables and binary search trees); introduction to NP-completeness.	
7. Course objectives/student learning outcomes/program outcomes	
Course objectives:	Upon completing the course, students will <ul style="list-style-type: none"> ● Be able to understand and solve common recurrence relations ● Be able to analyze the runtime performance of algorithms ● Be able to understand common algorithmic techniques, including divide and conquer, greedy programming, and dynamic programming with memorization ● Be able to understand and design algorithms ● Be able to understand and design data structures ● Be able to adapt common algorithmic techniques to efficiently solve problems in key areas, including sorting, searching, and graph problems ● Be able to select, adapt, and combine specific algorithms for specific problem contexts

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Student learning outcomes & relationship to ABET 1-7 outcomes:	<ul style="list-style-type: none"> ● (Outcome 2) An ability to apply the computing/engineering design process to produce solutions that meet a given set of computing/engineering requirements with consideration for public health and safety, and global cultural, social, environmental, economic, and other factors as appropriate to the discipline (Design). ● (Outcome 6) An ability to apply engineering/computer science theory and hardware/software development fundamentals to develop and conduct appropriate experimentation, analyze and interpret data, and use computing/engineering judgment to produce engineering/computing-based solutions/conclusions (Experimentation and/or Simulation).
8. Course evaluation method	
<p>Quizzes (5) – 50% Midterm – 25% Final – 25%</p>	
9. Course grading scale	
<p>Grading Scale (%):</p> <ul style="list-style-type: none"> ● > 90.00 : A ● 85.00 – 89.99 : A- ● 82.00 – 84.99: B+ ● 77.00 – 81.99: B ● 75.00 – 76.99: B- ● 72.00 – 74.99: C+ ● 67.00 – 71.99: C ● 65.00 – 66.99: C- ● < 65.00: F <p><i>I reserve the right to make the grading scale more lenient (i.e., in your favor).</i></p>	
10. Policy on makeup tests, late work, and incompletes	
<p><i>Makeup tests</i> are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student from participating in the exam. Makeup exam should be administered and proctored by department personnel unless there are other pre-approved arrangements</p> <p><i>Late work</i> is not acceptable.</p> <p><i>Incomplete grades</i> are against the policy of the department. Unless there is solid evidence of a medical or otherwise serious emergency situation incomplete grades will not be given.</p>	
11. Special course requirements	
N/A	
12. Classroom etiquette policy	
University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.	

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If I am more than ten minutes late to class, you should assume that I am dealing with an emergency, and that I will not be able to make it to class. In such a rare case, class is automatically canceled, and you are free to leave.

University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.

This is a discussion-oriented course. For us to maximize the benefit of our time together, students are expected to actively engage in classroom discussions.

13. Attendance policy statement

Students are expected to attend all of their scheduled university classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the university reserves the right to deal at any time with individual cases of non-attendance.

Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in university-approved activities. Examples of university-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances, and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a university-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

14. Disability policy statement

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie, and Jupiter – however, disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

15. Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally, and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

16. Code of Academic Integrity policy statement

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see [University Regulation 4.001](#).

17. Required texts/reading

Textbook: Introduction to Algorithms, Third Edition (Cormen, Leiserson, Rivest, Stein)

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18. Supplementary/recommended readings

TBA

19. Course topical outline, including dates for exams/quizzes, papers, completion of reading

- Introduction to algorithm design and analysis
- Foundations: asymptotic notations, common functions, summations, and recurrences (Master Theorem)
- Sorting: Insertion sort, Merge sort, Heapsort, Quicksort, Sorting in Linear Time
- Medians, minimum and maximum, selection problem
- Divide-and-Conquer
- Basic Data Structures, Binary Search Trees, Hash Tables, Heaps and Priority queues
- Dynamic Programming. Application problems such as Matrix-Chain Multiplication, Longest Common Subsequence
- Greedy Algorithms. Application problems such as Activity-Selection Problem, Huffman Codes
- Elementary Graph Algorithms: graph representation, breadth-first search, depth-first search
- Minimum Spanning Trees: Prim, Kruskal
- Single-Source Shortest Paths: Bellman-Ford, Dijkstra
- Introduction to NP-Completeness