Outlines for Theory of Algorithms
by Peter M. Maurer
There will be 3 equally weighted exams. Homework will be assigned every day. Homework will count 1/4 of your grade (equivalent to a fourth exam.) No programming exercises will be assigned.

1. Jan 9  Algorithms, Functions, Growth Rates
2. Jan 11  Searching an Ordered List
3. Jan 16  Sorting
4. Jan 23  Sorting
5. Jan 25  Sorting
6. Jan 30  Sorting
7. Feb 1   Selection and Adversary Arguments
8. Feb 6   Graphs and Digraphs
9. Feb 8   EXAM
10. Feb 13  Graphs and Digraphs
11. Feb 15  Graphs and Digraphs
12. Feb 20  Graphs and Digraphs
13. Feb 22  Polynomials & Matrices
14. Feb 27  Polynomials & Matrices
15. Mar 1   Polynomials & Matrices
16. Mar 6   NP-Complete Problems
17. Mar 8   NP-Complete Problems
18. Mar 13  EXAM
19. Mar 15  NP-Complete Problems
20. Mar 27  NP-Complete Problems
21. Mar 29  Parallel Algorithms
22. Apr 3   Parallel Algorithms
23. Apr 5   Parallel Algorithms
24. Apr 10  String Matching
25. Apr 12  Dynamic Programming
26. Apr 17  Dynamic Programming
27. Apr 19  Chapter 8
28. Final Exam
Text: Baase, Computer Algorithms, Introduction to Design and Analysis

There will be 3 equally weighted exams. Homework will be assigned every day. Homework will count 1/4 of your grade (equivalent to a fourth exam.) No programming exercises will be assigned.

1. Jan 9  Algorithms, Functions, Growth Rates
2. Jan 11 Searching an Ordered List
3. Jan 16  Sorting
4. Jan 18  Sorting
5. Jan 23  Sorting
6. Jan 25  Sorting
7. Jan 30  Selection and Adversary Arguments
8. Feb 1   Graphs and Digraphs
9. Feb 6   EXAM
10. Feb 8  Graphs and Digraphs
11. Feb 13 Graphs and Digraphs
12. Feb 15 Graphs and Digraphs
13. Feb 20 Polynomials & Matrices
14. Feb 22 Polynomials & Matrices
15. Feb 27 Polynomials & Matrices
16. Mar 1  NP-Complete Problems
17. Mar 6  NP-Complete Problems
18. Mar 8  NP-Complete Problems
19. Mar 13 EXAM
20. Mar 15 NP-Complete Problems
21. Mar 27 Parallel Algorithms
22. Mar 29 Parallel Algorithms
23. Apr 3  Parallel Algorithms
24. Apr 5  String Matching
25. Apr 10 Dynamic Programming
26. Apr 12 Dynamic Programming
27. Apr 17 Chapter 8
28. Apr 19 Chapter 8

Final Exam Thursday, Apr 26, 10:30AM-12:30PM
Text: Baase, Computer Algorithms, Introduction to Design and Analysis

There will be 3 equally weighted exams. Each will count 30% of your grade. Homework will be assigned every day. Homework will not be graded, but a word to the wise: DO THE HOMEWORK EVERY DAY. The problems given on the exam will be similar to the homework exercises, and the exercises will be much too difficult to do at the last minute, even for the most gifted of students. No programming exercises will be assigned, but you will be expected to go to the library and find a paper in a current journal, read the paper, and write a report. The report will be handed in the second-to-last week of class (DATE) and will count for 10% of your grade.

1. Jan 8 Introduction Ch. 1
2. Jan 10 Introduction
3. Jan 15 Sorting Ch. 2
4. Jan 17 Sorting
5. Jan 22 Sorting
6. Jan 24 Sorting
7. Jan 29 Sorting
8. Jan 31 Selection and Adversary Arguments Ch. 3
9. Feb 5 EXAM
10. Feb 7 Selection and Adversary Arguments
11. Feb 12 Graphs and Digraphs Ch. 4
12. Feb 14 Graphs and Digraphs
13. Feb 19 Graphs and Digraphs
14. Feb 21 Graphs and Digraphs
15. Feb 26 Graphs and Digraphs
16. Feb 28 Polynomials & Matrices Ch.7
17. Mar 5 Polynomials & Matrices
18. Mar 7 Polynomials & Matrices
19. Mar 12 EXAM
20. Mar 14 NP-Complete Problems Ch. 9
21. Mar 26 NP-Complete Problems
22. Mar 28 NP-Complete Problems
23. Apr 2 NP-Complete Problems
24. Apr 4 Parallel Algorithms Ch. 10
25. Apr 9 Parallel Algorithms
26. Apr 11 Parallel Algorithms
27. Apr 16 Special Topics Ch. 5, 6, 8
28. Apr 18 Special Topics

Final Exam Period Thursday, Apr 25, 6:00 PM- 8:00 PM
Recommended Homework exercises for selected chapters:

Ch. 1: 1.2, 1.7, 1.10, 1.11, 1.12, 1.13, 1.14, 1.16, 1.17, 1.22, 1.24, 1.33, 1.35

Ch. 2: 2.1, 2.2, 2.3, 2.7, 2.8, 2.10, 2.11, 2.14, 2.16, 2.17, 2.18, 2.19, 2.21, 2.22, 2.23, 2.26, 2.30

Ch. 3: 3.1, 3.4, 3.5, 3.10

Ch. 4: 4.3, 4.9, 4.10, 4.11, 4.12, 4.13, 4.17, 4.18, 4.19, 4.28, 4.30, 4.31, 4.32, 4.34, 4.42, 4.48, 4.49

Ch. 7: 7.1, 7.3, 7.5, 7.7, 7.8, 7.10, 7.12, 7.13


Ch. 10: 10.1, 10.3, 10.10, 10.14, 10.16
A note on prerequisites: This course requires graduate standing, or my permission for enrollment. If you are not a Computer Science/Engineering graduate student who has been formally accepted by the department of Computer Science and Engineering, then you must get my permission PERSONALLY to take this course, ESPECIALLY if you are taking this course through FEEDS. FEEDS students may call my office, all others must see me in person.

There will be 3 equally weighted exams. Each will count 25% of your grade. Homework will be assigned every day. Homework will be assigned every day, and will be graded it will count 15% of your grade. A WORD TO THE WISE: The problems given on the exam will be similar to the homework exercises, and the exercises will be much too difficult to do at the last minute, even for the most gifted of students. No programming exercises will be assigned, but you will be expected to go to the library and find a paper in a current journal, read the paper, and write a report. The report will be handed in on APR 16th, 1992. LATE REPORTS WILL NOT BE ACCEPTED! If you anticipate problems with the Apr 16th date, DO THE REPORT NOW!

1. Jan 9 Mathematical Foundations Ch. 1-6
2. Jan 14 Mathematical Foundations
3. Jan 16 Mathematical Foundations
4. Jan 21 Mathematical Foundations
5. Jan 23 Sorting Ch. 7-9
6. Jan 28 Sorting
7. Jan 30 Sorting
8. Feb 4 Selection Ch. 10
9. Feb 6 EXAM
10. Feb 11 Graph Algorithms Ch. 23-27
11. Feb 13 Graph Algorithms
12. Feb 18 Graph Algorithms
13. Feb 20 Graph Algorithms
14. Feb 25 Graph Algorithms
15. Feb 27 Graph Algorithms
16. Mar 3 NP-Completeness Ch. 36-37
17. Mar 5 NP-Completeness
18. Mar 10 NP-Completeness
19. Mar 12 EXAM
20. Mar 24 NP-Completeness
21. Mar 26 NP-Completeness
22. Mar 31 Parallel Algorithms Ch. 30
23. Apr 2 Parallel Algorithms
24. Apr 7 Parallel Algorithms
25. Apr 9 Matrix Algorithms Ch. 31
26. Apr 14 Matrix Algorithms
27. Apr 16 FFT Ch. 32
28. Apr 21 String Matching Ch. 34
29. Apr 23 Arithmetic Circuits Ch. 29

Final Exam Period TO BE ANNOUNCED!
Text: Sara Baase, *Computer Algorithms: Introduction to Design and Analysis*

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There will be 3 exams. The first two exams will count 25% of your grade. The third exam will be comprehensive and will count 40% of your grade. Homework will be assigned every day (if I remember). It will be graded and will count 10% of your grade. No programming exercises will be assigned.

A WORD TO THE WISE: The problems given on the exam will be similar to the homework exercises, and the exercises will be much too difficult to do at the last minute, even for the most gifted students.

1. Jan 7  Mathematical Foundations        Ch. 1
2. Jan 12 Mathematical Foundations
4. Jan 19 Mathematical Foundations
5. Jan 21 Sorting                         Ch. 2
6. Jan 26 Sorting
7. Jan 28 Sorting
8. Feb 2 Adversary Arguments             Ch. 3
9. Feb 4 EXAM
10. Feb 9 Graph Algorithms               Ch. 4
11. Feb 11 Graph Algorithms And Notes
12. Feb 16 Graph Algorithms
13. Feb 18 Graph Algorithms
14. Feb 23 Graph Algorithms
15. Feb 25 Graph Algorithms
16. Mar 2 NP-Completeness                Ch. 9
17. Mar 4 NP-Completeness And Notes
18. Mar 9 NP-Completeness
19. Mar 11 EXAM
20. Mar 23 NP-Completeness
21. Mar 25 NP-Completeness
22. Mar 30 Parallel Algorithms           Ch. 10
23. Apr 1 Parallel Algorithms
24. Apr 6 Parallel Algorithms
25. Apr 8 Matrix Algorithms              Ch. 7
26. Apr 13 Matrix Algorithms
27. Apr 15 FFT                           Ch. 7
28. Apr 20 String Matching               Ch. 5
29. Apr 22 String Matching

Final Exam Period TO BE ANNOUNCED!
I normally maintain an open door policy with respect to office visits. You are welcome to come by at any
time. The door will be closed -- knock and it will be opened.

TA: Kiran Doreswamy (Kiran): Hours 2-4 pm Fridays, RM 327.
EMAIL: local: kiran   remote: kiran@eggo.csee.usf.edu

Text: Sara Baase, *Computer Algorithms: Introduction to Design and Analysis*

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Computer Science/Engineering graduate student who has been formally accepted by the department of
Computer Science and Engineering, then you must get my permission PERSONALLY to take this course,
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others must see me in person.

There will be 3 exams. The first two exams will count 25% of your grade. The third exam will be
comprehensive and will count 40% of your grade. Homework will be assigned every day (if I remember).
It will be graded and will count 10% of your grade. *No* programming exercises will be assigned.

1. Jan 10    Mathematical Foundations    Ch. 1
2. Jan 12    Mathematical Foundations
3. Jan 19    Mathematical Foundations
4. Jan 24    Sorting    Ch. 2
5. Jan 26    Sorting
6. Jan 31    Sorting
7. Feb 2    Adversary Arguments    Ch. 3
8. Feb 7    EXAM
9. Feb 9    Graph Algorithms    Ch. 4
10. Feb 14    Graph Algorithms And Notes
11. Feb 16    Graph Algorithms
12. Feb 21    Graph Algorithms
13. Feb 23    Graph Algorithms
14. Feb 28    Graph Algorithms
15. Mar 2    NP-Completeness    Ch. 9
16. Mar 7    NP-Completeness And Notes
17. Mar 9    EXAM (Last Day to Drop!!)
18. Mar 21    NP-Completeness
19. Mar 23    NP-Completeness
20. Mar 28    NP-Completeness
21. Mar 30    Parallel Algorithms    Ch. 10
22. Apr 4    Parallel Algorithms
23. Apr 6    Parallel Algorithms
24. Apr 11    Matrix Algorithms    Ch. 7
25. Apr 13    Matrix Algorithms
26. Apr 18    FFT    Ch. 7
27. Apr 20    String Matching    Ch. 5
28. Apr 25    String Matching

Final Exam Period FRIDAY APR 29, 8:00-10:00 AM
I normally maintain an open door policy with respect to office visits. You are welcome to come by at any time. The door will be closed -- knock and it will be opened.

Text: Cormen, Leiserson, Rivest, *Introduction to Algorithms*

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There will be 3 exams. The first two exams will count 25% of your grade. The third exam will be comprehensive and will count 40% of your grade. Homework will be assigned every day (if I remember). It will be graded and will count 10% of your grade. *No* programming exercises will be assigned.

1. Jan 9 Mathematical Foundations Ch. 1, Ch. 2
2. Jan 11 Mathematical Foundations Ch 3, Ch 4
3. Jan 16 HOLIDAY: Martin Luther King day
4. Jan 18 Mathematical Foundations Ch 5, Ch 6
5. Jan 23 Sorting Notes
6. Jan 25 Sorting Ch.8
7. Jan 30 Sorting Ch 7
8. Feb 1 Sorting Ch 9
9. Feb 6 Graph Algorithms Ch. 23
10. Feb 8 Graph Algorithms Ch 24
11. Feb 13 EXAM
12. Feb 15 Graph Algorithms Ch 25
13. Feb 20 Graph Algorithms Ch 26
14. Feb 22 Graph Algorithms Ch 27
15. Feb 27 Graph Algorithms Notes
16. Mar 1 NP-Completeness Ch 36
17. Mar 8 NP-Completeness Ch 37
   Mar 10 LAST DAY TO DROP (Friday, No class today)
18. Mar 13 HOLIDAY: Spring Break
19. Mar 15 HOLIDAY Spring Break
20. Mar 20 NP-Completeness
21. Mar 22 NP-Completeness Notes
22. Mar 27 EXAM
23. Apr 3 Parallel Algorithms Ch 30
24. Apr 5 Parallel Algorithms Ch 30
25. Apr 10 Matrix Algorithms Ch 31
26. Apr 12 Matrix Algorithms Ch 31
27. Apr 17 FFT Ch. 32
28. Apr 19 String Matching Ch. 34
29. Apr 24 String Matching Ch 34
30. Apr 26 Arithmetic Circuits Ch 29

Final Exam Period WEDNESDAY MAY 3, 8:00-10:00 AM
Chapter 2
   Page 31: 2.1-1, 2.1-2, 2.1-4
   Page 37: 2.2-1, 2.2-4, 2.2-5, 2.2-7
   Page 38: 2-2, 2-3
   Page 39: 2-4

Chapter 3
   Page 45: 3.1-1, 3.1-3
   Page 52: Problem 3-1.

Chapter 4
   Page 56: 4.1-1, 4.1-5
   Pages 60-61: 4.2-1, 4.2-3
   Page 64: 4.3-1, 4.3-2, 4.3-3
   Pages 72-75: 4-1, 4-4

Chapter 5
   Page 81: 5.1-2
   Page 83: 5.2-1, 5.2-2, 5.2-3

Chapter 6
   Page 103: 6.1-1, 6.1-3, 6.1-5, 6.1-6
   Page 109: 6.2-2, 6.2-3
   Page 114: 6.3-1, 6.3-2, 6.3-3
I normally maintain an open door policy with respect to office visits. You are welcome to come by at any time. The door will be closed -- knock and it will be opened.

**TA:** Mingrui Zhang, Office Hrs: TR 2:00-4:00PM, or by appointment. mzhang@grad.csee.usf.edu

**Text:** Cormen, Leiserson, Rivest, *Introduction to Algorithms*

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Final Exam Period MONDAY APRIL 29, 1:00-3:00 PM
TUESDAY APRIL 30 1:00-3:00 PM
I normally maintain an open door policy with respect to office visits. You are welcome to come by at any time. The door will be closed -- knock and it will be opened.

TA: TBA

Text: Cormen, Leiserson, Rivest, *Introduction to Algorithms*

Prerequisites: This course requires graduate standing, or my permission for enrollment. If you are not a Computer Science/Engineering graduate student who has been formally accepted by the department of Computer Science and Engineering, then you must get my permission PERSONALLY to take this course.

There will be 3 exams. The first two exams will count 25% of your grade. The third exam will be comprehensive and will count 40% of your grade. Homework will be assigned every day (if I remember). It will be graded and will count 10% of your grade. No programming exercises will be assigned.

1. Aug 26 Mathematical Foundations Ch. 1, Ch. 2
2. Aug 28 Mathematical Foundations Ch 3, Ch 4
   Sept 2 HOLIDAY
3. Sept 4 Mathematical Foundations Ch 5, Ch 6
4. Sept 9 Mathematical Foundations Notes
5. Sept 11 Sorting Notes
6. Sept 16 Sorting Ch.8
7. Sept 18 Sorting Ch 7
8. Sept 23 Sorting Ch 9
9. Sept 25 Graph Algorithms Ch. 23
10. Sept 30 Graph Algorithms Ch. 24
11. Oct 2 EXAM
12. Oct 7 Graph Algorithms Ch. 25
13. Oct 9 Graph Algorithms Ch. 26
14. Oct 14 Graph Algorithms Ch. 27
15. Oct 16 Graph Algorithms Notes
16. Oct 21 NP-Completeness Ch 36
17. Oct 23 NP-Completeness Ch 36
18. Oct 28 NP-Completeness Ch 37
19. Oct 30 NP-Completeness Notes
20. Nov 4 NP-Completeness Notes
21. Nov 6 EXAM
   Nov 11 Holiday
22. Nov 13 Parallel Algorithms Ch 30
23. Nov 18 Parallel Algorithms Ch 30
24. Nov 20 Parallel Algorithms Ch 30
25. Nov 25 Matrix Algorithms Ch. 31
26. Nov 27 Matrix Algorithms Ch. 31
27. Dec 2 FFT Ch. 32
28. Dec 4 String Matching Ch. 34
29. Dec 9 String Matching Ch 34

Final Exam Period: FRIDAY December 13, 1:00-3:00 PM
I normally maintain an open door policy with respect to office visits. You are welcome to come by at any time. The door will be closed -- knock and it will be opened.

TA: Wallon Henriques, Off Hr: W 11:00-12:00 TA Room, Ph 974-2170

Text: Cormen, Leiserson, Rivest, *Introduction to Algorithms*


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1. Aug 26 Mathematical Foundations Ch. 1, Ch. 2
2. Aug 28 Mathematical Foundations Ch 3, Ch 4
3. Sept 2 Mathematical Foundations Ch 5, Ch 6
4. Sept 4 Mathematical Foundations Notes
5. Sept 9 Mathematical Foundations Notes
6. Sept 11 Sorting Notes
7. Sept 16 Sorting Ch.8
8. Sept 18 Sorting Ch 7
9. Sept 23 Sorting Ch 9
10. Sept 25 Graph Algorithms Ch. 23
11. Sept 30 Graph Algorithms Ch. 24
12. Oct 2 EXAM
13. Oct 7 Graph Algorithms Ch. 25
14. Oct 9 Graph Algorithms Ch. 26
15. Oct 14 Graph Algorithms Ch. 27
16. Oct 16 Graph Algorithms Notes
17. Oct 21 NP-Completeness Ch 36
18. Oct 23 NP-Completeness Ch 36
19. Oct 28 NP-Completeness Ch 37
20. Oct 30 NP-Completeness Notes
21. Nov 4 NP-Completeness Notes
22. Nov 6 EXAM
23. Nov 11 Holiday
24. Nov 13 Parallel Algorithms Ch 30
25. Nov 18 Parallel Algorithms Ch 30
26. Nov 20 Parallel Algorithms Ch 30
27. Nov 25 Matrix Algorithms Ch. 31
28. Dec 2 FFT Ch. 32
29. Dec 4 String Matching Ch. 34

Final Exam Period: THURSDAY December 11, 1:00-3:00 PM

The Adventure Begins!
I normally maintain an open door policy with respect to office visits. You are welcome to come by at any time. The door will be closed -- knock and it will be opened.

**TA:** Wallon Henriques, Off Hr: W 11:00-12:00 TA Room, Ph 974-2170

**Text:** Cormen, Leiserson, Rivest, *Introduction to Algorithms*


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I normally maintain an open door policy with respect to office visits. You are welcome to come by at any time. The door will be closed -- knock and it will be opened.

**Prerequisites:** This course requires graduate standing, or my permission for enrollment. If you are *not* a Computer Science/Engineering graduate student who has been formally accepted by the department of Computer Science and Engineering, then you must get my permission PERSONALLY to take this course.

There will be 3 exams. The first two exams will count 25% of your grade. The third exam will be comprehensive and will count 40% of your grade. Homework will be assigned every day (if I remember). It will be graded and will count 10% of your grade. *No* programming exercises will be assigned.

1. Aug 24  Mathematical Foundations  Ch. 1, Ch. 2
2. Aug 26  Mathematical Foundations  Ch 3, Ch 4
3. Sept 2   Mathematical Foundations  Ch 5, Ch 6
4. Sept 9   Mathematical Foundations  Notes
5. Sept 14  Mathematical Foundations  Notes
6. Sept 16  Sorting                    Notes
7. Sept 21  Sorting                    Ch.8
8. Sept 23  Sorting                    Ch 7
9. Sept 28  Sorting                    Ch 9
10. Sept 30 EXAM                        
11. Oct 5   Graph Algorithms           Ch. 23
12. Oct 7   Graph Algorithms           Ch. 24
13. Oct 12  Graph Algorithms           Ch. 25
14. Oct 14  Graph Algorithms           Ch. 26
15. Oct 19  Graph Algorithms           Ch. 27
16. Oct 21  Graph Algorithms           Notes
17. Oct 26  NP-Completeness             Ch 36
18. Oct 28  NP-Completeness             Ch 36
19. Nov 2   NP-Completeness             Ch 37
20. Nov 4   EXAM                        
21. Nov 9   NP-Completeness             Notes
22. Nov 16  NP-Completeness             Notes
23. Nov 18  NP-Completeness             Notes
24. Nov 23  NP-Completeness             Notes
25. Nov 25  NP-Completeness             Notes
26. Nov 30  Parallel Algorithms         Ch 30
27. Dec 2   Parallel Algorithms         Ch 30

The final examination will be held during finals week.

**FINAL:** 3:30-5:30 Thursday Dec. 9th.

Off to Explore Strange New Worlds!
I normally maintain an open door policy with respect to office visits. You are welcome to come by at any time. The door will be closed -- knock and it will be opened.

**TA:** TBA

**Texts:** Cormen, Leiserson, Rivest, *Introduction to Algorithms*

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The final examination will be held during finals week. At the time determined by the FEEDS office.

**FINAL:** TBA.