

Lewis-Clark State College
Fall 2008
CS-310: Analysis of Algorithms
Course Syllabus

Instructor: Dr. Daniel Conte de Leon
Office: Meriwether Lewis Hall (MLH), Room 315B
Phone: (208) 792-2384
Email: dfcontedeleon@lcmail.lcsc.edu

Continued registration in this course indicates that the student understands and accepts all the policies described within this document.

1 Instructor Information

Instructor: Dr. Daniel Conte de Leon
Office: Meriwether Lewis Hall (MLH), Room 315B
Phone: (208) 792-2384
Email: dfcontedeleon@lcmail.lcsc.edu

Office Hours for Fall 2008:
Monday, Tuesday, Wednesday, and Thursday from 11:45 to 12:30
and Tuesday from 09:00 to 10:30.

My preferred method of contact is personally. You are welcome to talk to me any time I am available such as: before or after class, during my office hours, or just by visiting me in my office. If I am in my office I usually have my door open, just stop by.

2 Course Delivery Information

This course is delivered through a combination of lectures, laboratories, and online content.

2.1 Lecture Meetings Time and Place

Monday and Wednesday from 10:30 to 11:45

Meriwether Lewis Hall (MLH), Room 310.

2.2 Laboratory Meetings Time and Place

Monday from 15:00 to 17:00

Meriwether Lewis Hall (MLH), Room 310.

2.3 Online Access

Homework and Assignments will be posted and received online on the Blackboard course website. Instructions on how to access the Blackboard course website will be given in class.

3 Course Content

3.1 Course Description

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to automata theory and its application to language translation.

3.2 Course Goals

The goals of this course are: Improve student's algorithm design skills; Improve student's critical thinking skills; Develop skills necessary to analyze algorithms from a theoretical and practical standpoint; Acquire the necessary knowledge for the analysis and measurement of algorithm efficiency; Develop the skills necessary to analyze trade-offs and make well-founded engineering decisions on algorithms; Test and practice different techniques for the development of algorithms.

3.3 Topics Covered

Topics covered during this include but are not limited to:

- Introduction to the Analysis of Algorithms.
- Recursion and Recursive Algorithms.
- Analysis of Searching and Sorting Algorithms.
- Analysis of String and Graph Algorithms.
- Analysis and Implementation of Parallel Algorithms.

3.4 Course Prerequisites

A grade of "C" or better in CS 213: Algorithms and Data Structures, or permission of instructor.

4 Course Textbook and Required Resources and Materials

4.1 Textbook

Author : Jeffrey J. McConnell.

Title : Analysis of Algorithms: An Active Learning Approach.

Edition : Second.

Publisher : Jones and Bartlett, U.S.A.

Year : 2007

ISBN-13 : 978-0-7637-0782-8.

4.2 Reading Materials

The course textbook will be complemented with other reading materials as needed which will be made available to students through the use of Internet accessible materials or hard-copies. These reading materials will be determined and given during the semester as needed. Other external reading materials might be needed in order to develop required presentations or write required papers.

4.3 Computer Resources and Internet Access

Access to a computer and the Internet is a requirement for this course. If you do not have access to a computer and the Internet at home, the college will provide scheduled access to these resources for you subject to the availability of the resources.

This course is delivered in one or more state-of-the-practice computer laboratories with modern computers and Internet access. The times scheduled for course delivery are the only times you will have reserved time blocks to access needed computer resources. In addition, you may use any other computer laboratory in

the college during their corresponding allocated hours and if in compliance with the laboratory policies. Notice that other computer laboratories in the college may NOT have the necessary software installed.

IT IS THE STUDENT'S RESPONSIBILITY TO ENSURE THAT NEEDED COMPUTER RESOURCES AND INTERNET ACCESS, OTHER THAN THE SPECIFICALLY SCHEDULED FOR THIS COURSE, ARE AVAILABLE TO THE STUDENT IN A TIMELY FASHION IN ORDER TO ACCOMPLISH REQUIRED TASKS. THE STUDENT MUST IMMEDIATELY COMMUNICATE TO THE INSTRUCTOR IF THE STUDENT DOES NOT HAVE ACCESS TO THESE RESOURCES.

4.4 Digital Storage

A portable digital storage media such as a Thumb Drive is needed to save the digital documents and materials developed during class and laboratory meetings. The college WILL NOT provide the student with any portable digital storage device.

4.5 Office Supplies

Office supplies such as folder, paper, pencils, etc., are needed. The college WILL NOT provide the office supplies needed for this course.

5 Student Responsibilities and Commitment to the Course

In order to achieve the goals of the course and successfully learn the materials needed in order to pass this course, the student MUST be committed to the time and work needed.

Continuing registration in this course indicates that the student IS COMMITTED TO and RESPONSIBLE FOR :

- Attending lecture and laboratory meetings
- Reading the textbook and materials in order to prepare for lectures
- Reading the textbook and materials as assigned
- Reading the textbook and materials as needed to carry-on with assignments and homework
- Actively participating in class
- Cooperating with colleague students when necessary or required
- Developing all the required assignments and homework

6 Assignments, Homework, Presentations, Quizzes, and Exams

This course requires the student to prepare and submit work in several different ways; these might include: Assignments (reading, writing, researching, designing, and programming); Homework; Presentations; and Quizzes. Because this course carries a fair amount of theoretical and practical content the student should expect to work on assigned tasks every week.

6.1 Assignments

This course includes a mandatory Assignments component. Assignments will be posted frequently with clear instructions about what needs to be accomplished by the student. Assignments will be progressively more difficult and may build upon previous assignments developed by the student, a group that the student integrates, or other groups in the class.

6.2 Presentations

This course includes one or more mandatory oral presentations. The students will be asked to prepare and present these presentations to the instructor and the rest of the class.

6.3 Homework

This course includes homework exercises, questions, or essays. Problems might be selected from the textbook, other sources, or designed as needed.

6.4 Quizzes

This course includes weekly quizzes (most weeks) given at the beginning of class. The quizzes might cover materials not seen in class yet but assigned for reading from the textbook or other sources. Missed quizzes cannot be taken later. The logistics of Quizzes will be set upon at the beginning of the semester.

6.5 Assignment Deliverables

All submitted works **MUST** include a deliverable (write-up) explaining what was the task at hand and how the student (or group) accomplished the requested task, what difficulties they found, and how they approached and solved those difficulties.

For the case of assignments that include programming, source code and comments generated using an documenting tool such as JavaDoc or Doxygen will be **MANDATORY**. In the case of programs a write-

up is still MANDATORY but may be included as part of, and at the beginning of the comments report generated by Doxygen or similar.

6.6 Exams

There will be a mid-term exam and a final comprehensive exam.

7 Posting and Submission of Works

7.1 Posting

Homework, Assignments, and other materials necessary to carry-out this course will be posted on the Blackboard website for this course. The time given to develop and submit a solution to the homework or assignment will vary depending on the complexity of the task. In all cases time adequate to the task will be allocated.

7.2 Digital Submission

All materials MUST be digitally submitted through the Blackboard system on time. Not late works will be accepted unless the student requests to the instructor special permission for a late submission due to a medical or family situation. In the case of such requests the student must justify the reason for requesting a late submission; the approval and the delivery method will be determined in a case by case basis.

The student is responsible for creating and keeping all the materials needed or requested during the course of the semester.

It is recommended that the student maintains a digital or paper folder (or both) with all the homework, assignments, and projects developed for this course.

7.3 Submission Labeling

All submissions for ALL WORKS MUST clearly include on the top left corner or top center of the first page and in the given order the following information:

1. Semester and Year : Fall 2008
2. Course Number : CS-310
3. Course Title : Analysis of Algorithms

4. Student's Name :
5. Work Number and Name : (i.e: A-01 : First Assignment)
6. Long Date : (i.e: 01 January 2008)

7.4 Digital File Labeling

All files submitted through Blackboard (WebCT) must adhere to the naming convention specified below. In the case that a given submission includes more than one file then all the files included in the submission must be compressed (ZIPPED) into one unique file for submission.

The name of the file MUST be composed by concatenating the following fields separated by a dash: 1) The course number with no separation between the letters and the number (i.e.: CS100), 2) the first name of the student with the first letter in capitals and the rest no capitals (title caps) and the first letter of the lastname in capitals (i.e.: JohnD), 3) the work number with no dash (i.e.: A01), and 4) the letter "v" concatenated with the version of the work being submitted.

Digital Submission Naming Conventions				
Course Number	Student Name	Work Number	Work Version	File Name
CS-100	George Washington	A-01	1	CS100-GeorgeW-A01-v1
CS-200	Martin Luther King, Jr.	A-02	2	CS200-MartinK-A02-v2

7.5 Presentations

Presentations by students will be presented to the instructor and classmates. Schedules for presentations will be set as needed. Works prepared for presentation (for example PowerPoint presentations) MUST also be digitally submitted.

8 Attendance

This course requires from the student the acquisition of new knowledge in a short amount of time. Failure to attend class time (lecture or laboratory) is not an excuse for failing to submit needed homework. Attendance to both lecture and laboratory meetings is mandatory and will be part of a students final grade. The student will be expected, and will be responsible for, announcing with anticipation whenever possible if there is a medical, family, or work situation that prevents them from attending class.

9 Assessment

All the work submitted by the student will be assessed as needed and feedback will be given to the student. The students will have one opportunity to improve on their own work. The second iteration of

assessment will include a grade. There will be no opportunity to change the grade of an assignment or homework task after it has been assessed, feedback given, and grade given.

Even though some assignments, homework, or tasks, will be group tasks each student will be responsible for : keeping its own content, demonstrating that the student understands the materials, and demonstrating that the student is capable of performing the assignment on its own.

Notwithstanding the submitted works the instructor will orally assess students as needed in order to verify: authorship, level of understanding of the materials, and compliance with course policies.

9.1 Course Grading

The total points that a student will have for the course will be based on the points obtained for each piece of work in each category, weighted based on the following categories and their corresponding weights.

Point Allocation Categories	
Category	Weight %
Assignments, Homework, and Presentations	50
Mid-Term Exam	15
Final Exam	20
Quizzes	10
Participation and Involvement	05
Total	100

A final letter grade (A, B, C, D, F) will be assigned based on the total percentage that the student obtained for the course. The scale for such assignment is detailed in the following table.

Letter Grades		
Letter	From %	To %
A	90.00	100.00
B	80.00	89.99
C	70.00	79.99
D	60.00	69.99
F	00.00	59.99

10 Academic Dishonesty

Any form of academic dishonesty will NOT be allowed neither tolerated under any circumstances.

10.1 Student Code of Conduct - Academic Dishonesty

Definitions of Academic Dishonesty can be found in the Student Handbook in the Student Code of Conduct section <http://www.lcsc.edu/OSL/SHB/SHBcodeofconduct.htm>.

10.2 Appropriate Citation of Works

The student **MUST** correctly and completely cite **ALL** the sources from which it obtains information, if sources are not adequately cited the work will receive zero points and there will be no opportunity to resubmit. This policy also applies to **ALL** submitted works including source code obtained from the instructor, a colleague student, or any third party, including the internet.

IF ANY WORK OR PIECE OF WORK SUBMITTED IS FOUND TO BE PLAGIARIZED, INDEPENDENTLY FROM THE WORK BEING ALREADY GRADED OR NOT, THE STUDENT WILL BE SUBJECT TO FAIL THE COURSE.

11 Group Work Policy

Working in groups is a requirement for this course for some of the assignments or homework. Assignments or homework or any other task that is required to be developed in groups will be **CLEARLY STATED SO**.

Groups will be assigned as needed depending on the size and characteristics of each assignment, homework, or task.

Students are responsible for organizing themselves, arranging group meeting times and places, and dividing assigned work.

IF YOU ARE IN DOUBT IF A REQUIRED TASK IS TO BE PERFORMED INDIVIDUALLY OR IN A GROUP THEN ASK. ALL WORKS ARE ASSUMED TO BE INDIVIDUAL UNLESS CLEARLY SPECIFIED THAT THERE ARE TO BE PERFORMED WITHIN A GROUP.

DELIVERABLES CREATED BY A GROUP MUST STILL BE SUBMITTED BY EACH AND ALL STUDENTS OF THE GROUP INTO THE BLACKBOARD SYSTEM.

12 Source Code Comments

All source code (programs) **MUST** be adequately documented. Adequately means that the program **MUST** include sufficient comments in order to show that the student understands the problem and how to obtain the given solution. All comment documents **MUST** be generated using a documenting tool such as Doxygen.

SOURCE CODE WITHOUT COMMENTS AND ITS CORRESPONDING DOXYGEN (or other documentation tool as requested) REPORT WILL NOT BE ACCEPTED.

13 Third Party Source Code Licenses and Copyrights

In some cases it will be necessary to build upon other's persons work. For example, sometimes we must analyze, modify, and improve upon a third-party's work. Third-party includes, the instructor, classmates, colleagues, and the Internet. In such cases there are several conditions necessary for the work to be acceptable as follows:

- The licence and copyright information of the third party source code MUST be available, read, and understood.
- The license and copyright information of the third party source code MUST allow the use and modification of the piece of work for academic purposes.
- Compliance with the licence and copyright is mandatory.
- Complete and correct citations and acknowledgements for the piece of work must be given.

Cases when using third-party source code is permissible under the previous conditions will be EXPLICITLY stated.

If not explicitly stated the student MUST assume that for that given task, the use and modification of third-party source code is NOT allowed.

SIMPLY BECAUSE A PIECE OF WORK HAS BEEN MADE ACCESSIBLE THROUGH THE INTERNET OR ANY OTHER MEDIA DOES NOT IMPLY ANYTHING ABOUT IT'S LICENSE NOR RIGHTS TO COPY AND USE.

IN CASE OF DOUBT ABOUT THE LICENSE OF A THIRD-PARTY PIECE OF SOURCE CODE DO NOT COPY IT, USE IT, OR MODIFY IT.

FAILURE TO COMPLY WITH THIS POLICIES FOR THE FIRST TIME WILL RESULT IN A ZERO FOR THE GIVEN ASSIGNMENT. REPEATED CASES OF NON-COMPLIANCE WILL RESULT IN THE STUDENT FAILING THE COURSE.

14 Accommodations for Students with Disabilities

If you need course adaptations or accommodations because of a disability, if you have medical information that you would like to inform the instructor about, or if you need special arrangements for the course, please make an appointment to talk with me as soon as possible.

IF YOU NEED SPECIAL ARRANGEMENTS IN CASE THE BUILDING MUST BE EVACUATED PLEASE INFORM THE INSTRUCTOR AS SOON AS POSSIBLE.

In addition, if you need accommodations, the Office of Disability Services may be able to help. The Office for Disability Services is located at the Office of Student Life in Reid Centennial Hall, Room 111. Phone Numbers: (208) 792-2211 and (800) 933-5272.

For more information on accommodations please visit: <http://www.lcsc.edu/osl/ada.htm>.