CSC/CPE 365: Introduction To Database Systems
Winter 2022
Course Syllabus

January 2, 2022

Instructor:	Alexander Dekhtyar
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office:	14-212

What	Section 05
Lecture	TR 3:10 – 4:30pm 14-250
Lab	MWF 4:40 – 6:00pm 14-232A

Office Hours

	When	Where
Tuesday	8:10 - 9:00am	14-212
Wednesday	8:10am - 10:00am	14-212
Thursday	8:10am - 9:00am	14-212

Additional appointments can be scheduled by emailing the instructor at *dekhtyar@calpoly.edu*.

Overview

This is an introductory database course devoted to study of the principles of operation of modern relational database systems. During the course the students will learn the basic concepts of data management, the principles of operation of relational DBMS (Database Management Systems) and the principles of building database applications on top of relational DBMS. The students will study the SQL query language for relational data, and will learn how to use it to construct software that relies on DBMS to manage its data. In addition, some theoretical aspects of database management will be covered, as well as an overview of the internal organization of the DBMS. Course labs will use Oracle DBMS.

Texbook

Required: *Database Systems: The Complete Book.* H. Garcia-Molina, J.D. Ullman, J. Widom, 2009, 2nd Edition, Prentice Hall.

You can replace it with this book:

A First Course in Database Systems, J.D. Ullman, J. Widom, 2007, 3nd Edition, Prentice Hall.

(The latter book comprises the first half of the former. It is sufficient for the CSC 365 purposes. However, "The Complete Book" is also our textbook for other database courses).

Topics

The following will be covered in the course.

No.	Topic	Duration (weeks)
1.	Introduction: Data and Data Management	1
2.	Relational Model	1
3.	Relational Algebra	1-2
4.	SQL	3-4
	Midterm	Topics 1 – 4.
5	JDBC	1
6.	Overview of query processing and DBMS architechture	2
	Final Exam	Comprehensive

Most of the topics will be covered in the order specified above, but some variations are possible during the course.

Grading

Homeworks	0–5%
Labs	$40 - 50\%$
Midterm Exam	20-25%
Final Exam	**25 -35%**

Course Policies

Exams

Midterm exam will take place around Week 6 of the class. There will either be a second midterm during the last day of classes, or a common final exam. More details will be provided to you once the schedule settles.

The tentative date for the first midterm is *February 8 (Tuesday) or February 10 (Thursday)*

The official date and time for the final exam is *Tuesday, March 15, 4:10-7:00pm*. We are exploring either the second midterm exam on Thursday, March 10, or a common final on Saturday, March 12. The content of both the midterm and the end-of-quarter written exam will be adjusted appropriately once we finalize the schedule.

Make-up exams will not be given, *unless there are extraordinary circumstances present and I am notified in advance (see COVID-19 section below)*. The policy regarding the use of textbooks and notes will be announced at least one week prior to each exam.

Homeworks, Labs

The course has 7-8 lab assignments, designed to let you test in practice what we have learned in class. Each lab assignment spans multiple lab sessions. Most assignments have a one-week span. The final lab is a team mini project and is longer. Each lab assignment is due by the end of lab period on the due date (unless specified otherwise). You are welcome to work on the lab assignments outside the lab hours, however, lab period attendance is highly encouraged.

Most lab assignments are individual work. We will have a pair programming lab to start the course, and a team mini project to end it. Groups/pairings are to be formed by you - I will only intervene if someone cannot find a group/pair, or if there is a hard-to-resolve issue that requires my attention. All members of a team/pair will recieve the same grade for the assignment.

In addition to labs, a number of paper-and-pencil homeworks will be assigned. Homeworks will typically consist of problems taken from database textbooks, or similarly styled problems. The main purpose of the homeworks is to prepare you for the written exams. As such, homeworks are not graded (you get credit for submitted completed homework).

LabThreeSixFive

In this course we will both work directly with a MySQL server and will use labthreesixfive.com, a CSC 365-specific SQL assignment management tool built by Professor Andrew Migler and used extensively in his sections of CSC 365. You all will be granted accounts on labthreesixfive.com. Most major SQL labs will require submission of queries via the labthreesixfive.com (among other things, it provides for accurate and responsive automated grading so you will be able to receive expedient feedback on your labs). Some labs will require development using direct access to a MySQL server, while other labs will be conducted fully inside the labthreesixfive environment.

Late Submissions

All assignments are due on the specified date by the specified time: homeworks - at the beginning of the class (with grace period extending to the beginning of

the lab period); lab assignments, by the specific lab assignment deadline. Any deviations from these rules will be spelled out explicitly in the assignments.

Homework/lab assignments submitted later than indicated above will be considered *late submissions*.

If paper-and-pencil homework solutions are distributed on the due date of the homework, **late homework submissions will not be accepted**. Otherwise, late homeworks can be submitted during next 24 hours for a 10-30% penalty (the exact amount will depend on the submission time and the specific circumstances). No homework submissions will be accepted afterwards.

Late lab assignment submissions can be turned in before or at the beginning of the next lab period for a 10-30% penalty (the exact amount will depend on the submission time and the specific circumstances[1]). No lab assignment submissions will be accepted after that.

Communication

Mailing List. The class has an official mailing list. The email addresses for the mailing list is:

csc-365-05-2222@calpoly.edu

All students enrolled in the class are automatically subscribed to the mailing list. I will occasionally use the mailing list to broadcast information and post announcements.

Slack. We will have a slack workspace for this class. My experience with communication over Slack vs. communication via email suggests that Slack is a better medium. I will use the Slack workspace to post relevant course-related information, respond to your questions and broadcast any relevant course information to you.

I encourage both public and private messages on Slack and make every effort to respond to them expediently.

I encourage questions during classtime and questions via email and Slack. My answers to email/Slack questions may be broadcast to the entire class via the mailing list or over Slack, if the answer may be relevant to everyone (e.g. a correction in a text of a handout, or a clarification of a homework problem), and may also appear on the web page.

It is your responsibility to read your class-related email and to watch the course Slack workspace for announcements. Failure to read email/follow Slack workspace cannot be used as an excuse in the course.

Web Page

Class web page can be found at

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[1] The penalty will be larger if the gap between the two lab periods includes a weekend, and smaller otherwise

Through this page you will be able to access all class handouts including homeworks, project information and lecture notes (should the latter be written).

Links to web pages with additional information and important notes and announcements will also be posted.

COVID-19 Policies

This course will follow the Univeristy's COVID-19 policies, regulations, and recommendations.

Specifically:

- Your physical presence in class is a self-certification that you are following the procedures proscribed by the University w.r.t. COVID-19 testing and self-assessment.

- You **must** wear a mask to the class. I will try to have a supply of disposable masks available in case you did not bring one with you, and I will offer you one if I see that you are not wearing a mask.

- If you refuse to wear a mask, I will ask you to leave the class. If you refuse to leave the class, per University recommendations, I may decide to end the class early/cancel the class for the day. If this behavior repeats, it will be reported to the Office of Student Affairs.

- I will be lecturing while wearing a mask. If my voice is not sufficiently loud, please let me know, I will raise it. If what I am saying is muffled, please let me know, I will make every effort to speak more clearly (subject to my natural accent).

- If you have contracted COVID-19 and are isolating/in quarantine, or if you are unable to attend classes for any other reason, please let me know. I am available via zoom during all office hours (see above), and if necessary, we may schedule a zoom conversation outside of office hours to discuss coursework.

- If you are absent for more than two weeks due to COVID-19 or any other unforeseen circumstances, I will work with you in case you want to withdraw from the course. Absences of more than two weeks from the course may create a situation where you are in danger of falling behind in the coursework and not recovering. If you are interested in retaking CSC 365, I will make sure you will be registered for another section of it in the Spring quarter (although it might be with a different instructor).

- I may not be able to provide for adequate ability for students to join the lectures from their homes via zoom. The way in which I lecture makes it difficult to properly set up on-line participation and/or recording of the in-class lecture. At the same time, all course materials will be available

on the course web page, and I will try to provide succinct commentary of what we accomplished in class on our Slack workspace. For some material - e.g., working with the MySQL command-line client, or working with ThreeSixFive.com server, I *may decide* to post short tutorial videos if I feel that those are necessary.

- If you have to miss an exam due to COVID, **first and foremost get in touch with me BEFORE the exam takes place!** Depending on your circumstances, we will try to come with appropriate accommodations.

Academic Integrity

University Policies

Cal Poly's Academic Integrity policies are found at

http://www.academicprograms.calpoly.edu/academicpolicies/Cheating.htm

In particular, these policies define *cheating* as (684.1)

"...*obtaining or attempting to obtain, or aiding another to obtain credit for work, or any improvement in evaluation of performance, by any dishonest or deceptive means. Cheating includes, but is not limited to: lying; copying from another's test or examination; discussion of answers or questions on an examination or test, unless such discussion is specifically authorized by the instructor; taking or receiving copies of an exam without the permission of the instructor; using or displaying notes, "cheat sheets," or other information devices inappropriate to the prescribed test conditions; allowing someone other than the officially enrolled student to represent same.*"

Plagiarism, per University policies is defined as (684.3)

"... *the act of using the ideas or work of another person or persons as if they were one's own without giving proper credit to the source. Such an act is not plagiarism if it is ascertained that the ideas were arrived through independent reasoning or logic or where the thought or idea is common knowledge. Acknowledgement of an original author or source must be made through appropriate references; i.e., quotation marks, footnotes, or commentary.*"

University policies state (684.2): "Cheating requires an "F" course grade and further attendance in the course is prohibited." (appeal process is also outlined, see the web site above for details.). Plagiarism, per university policies (684.4) can be treated as a form of cheating, although a level of discretion is given to the instructor, allowing the instuctor to determine the causes of plagiarism and effect other means of remedy. It is the obligation of the instructor to inform the student that a penalty is being assessed in such cases.

Course Policies

All homeworks are to be completed by each student **individually**. Lab assignments are to be completed by the appropriate units (individual, pair, group), and no code/solution-sharing between units is permitted. Students are encouraged to discuss class content among themselves but NOT in a manner that constitutes plagiarism and cheating as defined above (e.g., you can solve together a problem from the textbook that had not been assigned in the homework, but you should solve assigned problems individually).