Course Description	Introduction to fundamental concepts of database management using primarily the relational model. Schema design and refinement. Query languages. Database application development environments. Overview of physical data organization, query optimization and processing, physical design, security and transactions used in recovery and concurrency control.
Course Goals	*Course Goals:* ● Learn how to design effective database schemas that accurately model real-world information semantics. ● Learn how to pose complex database queries in SQL as well as theoretical query languages. ● Understand what is meant by a transaction. ● Gain an introductory background in concurrency control and recovery. ● Learn about indexing and query optimization in database systems. Upon the successful completion of this course students will be able to: ● Write complex SQL and relational algebra queries ● Transform SQL queries to relational algebra and relational algebra queries to SQL ● Transform SQL queries into equivalent forms, e.g., to make them more efficient ● Explain how queries are processed and optimized ● Evaluate the utility of an index for a relational database table ● Evaluate existing database designs and design new databases effectively ● Use SQL queries embedded in a software application ● Describe and use transaction and recovery services
Prerequisites	CS 161, 250. Expected preparation: CS 251.
Textbook	Recommended: Database Systems: The Complete Book, Second Edition. By Garcia-Molina, Ullman and Widom, Pearson, 2009, ISBN 0-13-187325-3.

	Suggested: Since you will be using SQL in a number of assignments, you may wish to have additional information concerning the SQL query language. SQL: 1999 -- Understanding Relational Language Components, by Melton and Simon (2001, ISBN 1-55860-456-1) is a good reference. There are also a number of on-line references and tutorials (though beware of content farms).
Grading	Homework (40%-486/30%-586) (6 assignments) (Done individually or in groups of 2) Video Activities: (10%) Discussions: (10%) Grad Project: (10%) (586 students only) Midterm Exam (20%) Take home; open everything Final Exam (20%) Take home; open everything;
Philosophy	I believe in interactive and active learning. I value students' perspectives and encourage them to express their ideas and ask questions. I enjoy and encourage discussions. I work to include activities and active learning in my classes.
Attendance Policy	Students are responsible for all topics that are included in videos and are expected to watch all videos.
Collaboration Policy	Homeworks will be done individually or in pairs. You may discuss answers and solutions with other students, but the work submitted must be your own work or your own group's work.
Academic Integrity	PSU policies on academic integrity will be followed. See the PSU Catalog for details.
Title IX Reporting	As an instructor, one of my responsibilities is to help create a safe learning environment for my students and for the campus as a whole. We expect a culture of professionalism and mutual respect in our department and class. You may report any incident of discrimination or discriminatory harassment, including sexual harassment, to either the Office of Equity and Compliance or the Office of the Dean of Student Life. Please be aware that as a faculty member, I have the responsibility to report any instances of sexual harassment, sexual violence and/or other forms of prohibited discrimination. If you would rather share information about sexual harassment or sexual violence to a confidential employee

	who does not have this reporting responsibility, you can find [a list](#) of those individuals. For more information about Title IX please complete the required student module [Creating a Safe Campus](#) in your D2L.
Students with Disabilities	If you have, or think you may have, a disability that may affect your work in this class and feel you need accommodations, contact the Disability Resource Center to schedule an appointment and initiate a conversation about reasonable accommodations. The DRC is located in 116 Smith Memorial Student Union, 503-725-4150, drc@pdx.edu, https://www.pdx.edu/drc. ** If you already have accommodations, please contact me to make sure that I have received a faculty notification letter and discuss your accommodations.