ICS 113 – Database Fundamentals

Welcome to Database Fundamentals. In this class, you will be introduced to relational databases. We will take a look at relational calculus, the math behind relational databases, and use Structured Query Language (SQL) to create, build, and extract data from a database.

In this course you will learn to:

- Design a database based upon tables, records, and fields.
- Use the Structured Query Language (SQL) to gather information.
- Create reports that will help the user to understand the information.
- Use Relational Algebra to design queries

Instructor Information

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Office Hours: Online

Student Learning Outcomes

By the end of this class, you will be able to:

1. Show conversion of computer files into a database system by creating a simple database
2. Compare a relational database to a flat database
3. Dissect a database into tables, records, fields, keys, views and relationships
4. Demonstrate the normalization process
5. Find records using Structured Query Language (SQL) in a database
6. Create reports from specific records

Class times and Location

This is an online class. All lessons and interaction will be through Laulima.

Grading

Your final grade will be determined using a series of assignments and quizzes. There will be a total of 12 assignments and 2 quizzes. All assignments and quizzes are worth 1 point each.

To get the point for an assignment, you must show mastery by completing the assignment with no errors. If there is an error(s), I will tell you about it and return your submission. You can then fix it and resubmit it. There is no limit to the number of times an assignment can be resubmitted.

To get the point for a quiz, you must score 80% on it. If you score less than 80%, you will be allowed to retake the quiz. There is no limit on the number of times you can retake a quiz.
There is no due date other than December 10. All work must be turned in and all quizzes taken by that date. No work will be accepted after December 10.

Your letter grade is based upon the number of points you earn:
- A – 14 points.
- B – 11 to 13 points.
- C – 9 to 10 points.
- D – 7 to 8 points.
- F – 0 to 6 points.

Resources

Your textbook for this class is Elmasri and Navathe’s *Fundamentals of Database Systems* 6th ed. We will use Laulima for submitting and returning all assignments. All grades will be posted in Laulima and you will be able to track your progress by utilizing the grade book. In addition, there will be discussion boards in Laulima where you may post or answer questions. Use the private message tool in Laulima to contact the instructor.

Other resources

Tutoring may be available from the TRIO office in the Library Learning Commons on the WCC campus.

Statement and Policies

Disabilities Accommodation Statement
If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached by phone at 235-7448, by email at lemke@hawaii.edu, or by stopping by her office in Hale Akoakoa 213.

Academic Dishonesty, Cheating, and Plagiarism
You are responsible for the content and integrity of all work you submit. The guiding principle of academic integrity will be that all files, work, examinations, reports, and projects that you submit are your own work. See page 16 of the Windward Community College catalog for further clarification.

You will be guilty of cheating if you:
- Represent the work of others as your own (plagiarism).
- Use or obtain unauthorized assistance in any academic work.
- Give unauthorized assistance to other students.
- Modify, without instructor approval, an examination, paper, record, or report for the purpose of obtaining additional credit.
- Misrepresent the content of submitted work.
A Final Thought

Databases have become an integral part of everyday life. Governments, businesses, schools, and many individuals have turned to databases to help store data and to retrieve useful information. But a poorly designed database can do as much harm as good. By learning the proper techniques to design and build a database you can provide your clients and users with meaningful information.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lesson</th>
<th>Textbook Chapter</th>
<th>Assignment</th>
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</thead>
</table>
| 1    | Aug 20 | Introduction to Laulima  
Introduction to ICS 113  
Introduction to Databases | 1                |              |
| 2    | Aug 27 | Database Management Systems  
Introduction to Relational Algebra | 2                | Quiz 1       |
| 3    | Sep 4  | Overview of Relational Databases  
Structure of Relational Databases | 3                | Quiz 2       |
| 4    | Sep 10 | Introduction to SQL  
SQL - Creating a database | 4                | 1            |
| 5    | Sep 17 | SQL - Adding tables, and attributes to a database | 2                |              |
| 6    | Sep 24 | SQL - Adding tuples (records) to a database | 3                |              |
| 7    | Oct 1  | SQL - Updating information in a database | 4                |              |
| 8    | Oct 9  | SQL - Simple Queries | 5.1             | 5            |
| 9    | Oct 15 | SQL - Using constraints | 5.2             | 6            |
| 10   | Oct 22 | SQL - Creating Views | 5.3             | 7            |
| 11   | Oct 29 | SQL - Making changes | 5.4             | 8            |
| 12   | Nov 5  | Relational Algebra - Unary operators | 6.1             | 9            |
| 13   | Nov 12 | Relational Algebra - Set operations | 6.2 - 6.5       | 10           |
| 14   | Nov 19 | Thanksgiving week - No Lessons |              |              |
| 15   | Nov 26 | Design - Modeling using ER diagrams, Part 1 | 7.1 - 7.3       | 11           |
| 16   | Dec 3  | Design - Modeling using ER diagrams, Part 2 | 7.4 - 7.10      | 12           |
|      | Dec 10 | All work is due by December 10 |              |              |