

# IT-BAS 335 : Database Design

**Credits** 5

**Quarter Offered** Winter

This course will explore the principles and practices of creating efficient, scalable, and secure databases. The course includes an overview of different types of databases and their proper usage. Students will gain insight into relational and NoSQL databases. Students will learn database design, data modeling, query optimization, and database security needed for managers in IT. This class may include students from multiple sections.

Must be seeking a Bachelor of Applied Science in Management degree to enroll. If interested, visit [pencol.edu/bas](http://pencol.edu/bas)

## **Prerequisites**

Information Technology Management BAS Program Admittance

## **Course Outcomes**

Summarize the core principles and concepts involved in database design and management, including various types of databases and their applications in real-world scenarios.

Design efficient, scalable, and secure databases. Understand data modeling techniques to translate complex real-world data into organized and structured database schemas.

Illustrate the differences between relational and NoSQL databases, understanding their strengths, weaknesses, and appropriate use cases. Compare and contrast the advantages of each database type in various application scenarios.

Explain query optimization for enhanced performance and efficiency. Explore how to retrieve, filter, organize, and manipulate data for relational, SQL, and NoSQL databases.

Connect knowledge to real-world problems. Gain practical experience with popular database management systems through implementing database design, data manipulation, data retrieval, and data base security.