CENTER FOR APPLIED INFORMATION TECHNOLOGY
TOWSON UNIVERSITY

AIT 732: Advanced Database Management Systems
Credit Hours: 3
Prerequisite: AIT 632

Course Description: This course emphasizes the design, architecture, implementation, management, and administration of distributed database systems. Topics will build upon knowledge gained in AIT 632 and include: advanced data modeling, object-oriented databases, distributed databases, deductive databases, query optimization, functional dependencies, concurrency, security and integrity. Examples using various current DBMS including Microsoft SQL Server, Oracle, and Sybase Adaptive Server will be provided.

Learning Objectives:

1. Understand the fundamental concepts of relational database management systems
2. Understand the development of a database system as it progresses from the requirements gathering stage, to the database design phase, to the physical implementation and beyond
3. Gain knowledge on the concepts of database security and learn method to safeguard a database from a variety of threats
4. Understand the importance of database backups and of developing a recovery strategy
5. Learn advanced SQL functionality and understand how to use SQL to perform various computational tasks
6. Understand the concepts of query optimization, performance and tuning of a database
7. Ability to implement a small scale database application using modern commercial DBMS software

Suggested Textbooks:

1. Connelly, T., Begg, C., *Database Systems: A Practical Approach to Design, Implementation, and Management,* 4th edition, Pearson
2. R. Elmasri, S.B., Navathe, B., *Fundamental of Database Systems,* 4th edition, Cummings
3. Ramakrishnan, R., *Database Management Systems*, McGraw-Hill
4. Date, C.J., *An Introduction to Database Systems*, 8th edition, Addison-Wesley