Land Acknowledgement

Humber College is located on the traditional territories of the Ojibwe Anishinabe First Nations people. It is uniquely situated along the Humber River watershed, which historically provided an integral connection for Aboriginal Peoples between the Ontario lakeshore and the Lake Simcoe-Georgian Bay region. For more information visit the Aboriginal Resource Centre (LRC2137) North Campus (WEL301) Lakeshore Campus or www.humber.ca/aboriginal/

Faculty:	
Email:	
Faculty Availability:	By email appointment
Program Coordinator:	*Bernie Monette* *bernie.monette@humber.ca*

Course Title: Database Design and Development			
Course Code: HTTP 5105	Schedule Type Code: LLB	Credit Value: 3	Class Hours: 4
Programs: Web Development Graduate Certificate		Pre-Requisite(s): none	Co-requisite(s): none
Pre-requisite for: 5202, 5203, 5204			
Restrictions: Full-time students registered in the program.			

Program outcomes emphasized in this course:

1. Explain the types of business transactions conducted on a commercial website and the process for development of such transactions.
2. Prepare and present a proposal and a business plan for a commercial website.
3. Implement a website solution based on a set of business requirements or client specifications.
4. Create a complete content management system using a database and scripting language.
5. Develop data-driven websites for multiple platforms in accordance with best practices, industry standards in content management, security, database design, interface design, usability, accessibility and personalization.
6. Design and develop web services for a website using software programs.
7. Design a full featured functioning commercial website using software programs, including a defined information architecture that is supported by navigation, layout, text and graphics.
8. Manage web development projects using project management practices, documentation and software.
9. Test, troubleshoot and debug software created in the web projects.
10. Develop web projects as a leader or member of a web development team.

Approved by Dean/Associate Dean: Robert Richardson Aug 23, 2018

COURSE OUTLINE ACADEMIC YEAR 2018/2019

Course Description

This course is designed to introduce students to database design and development, based on (SQL) Structured Query Language and two industry standard databases: MySQL and Oracle. The student will learn how to access the database to retrieve data from tables and how to apply transactions to database tables. Students will also create stored procedures on the database.

Course Rationale

This course will help to lay down the basis of the database design. This course will provide the fundamentals of creation and accessing the database.

Learning Outcomes

OQF Category	At the successful completion of the course, the student will have demonstrated an ability to:
Depth and Breadth of Knowledge	1. Define client/server systems and multi-tier systems. 2. Define the relational database model. 3. Define a database structure by using ERD diagrams. 4. Define how to auto increment primary key values.
Knowledge of Methodologies	5. Retrieve data from Oracle tables and MySQL tables. 6. Perform data from Oracle tables and MySQL tables. 7. Create and modify database table.
Application of Knowledge	8. Create anonymous procedures in Oracle. 9. Create stored procedures with Oracle and MySQL 10. Apply conditions to data retrieval to extract only certain rows. 11. Apply group functions to database queries. 12. Define how to implement indexes.
Communication Skills	
Awareness of the Limits of Knowledge	13. Define how to manage transactions. 14. Define the types of constraints used in a database.
Professional Capacity/ Autonomy	

Essential Employability Skills

Essential Employability Skills are transferable skills that provide the foundation for a student's academic, vocational, and personal success.

	Communication		*Critical Thinking & Problem Solving*		*Interpersonal*
	Numeracy		*Information Management*		*Personal*

Learning Resources

Required Resources:

1. Murach's Oracle SQL and PL/SQL 2nd Edition, Joel Murach, Mike Murach and Associates, ISBN # 978-1-890774-80-6
2. Murach's MySQL 2nd Edition, Joel Murach, Mike Murach and Associates, ISBN# 978-1-890774-82-0

Supplemental Resources:

Faculty will identify additional references during course of study. If student are to be tested on this material it will be noted in class.

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See the Humber Libraries website (http://library.humber.ca) for additional information regarding copyright and for details on allowable limits.

Learning Delivery Format

Lecture (40%); Software instruction (30%); In-class Labs/Tutorials (30%); Supervised In-class Research (0%); Screening of student work/feedback (0%)

Course Content

Module	Topic(s)	Learning Outcomes Addressed	Learning Experiences	Readings/Resources (to be completed before the class or for use in the class)	Assessments
1	**Introduction to Database.**	1, 2, 3, 5, 7	Review course outline Define client/server systems and multi-tier systems Define the relational database model Introduce SQL and SQL programming environments Define the Oracle database environment used at Humber Describe the use of SQL developer to access the Oracle database at Humber Install and setup SQL developer	TEXT1: Ch 1, 2	Lab Exercise #1
2	**Accessing data from tables.**	4, 5, 6, 7	Retrieve rows from a single table Implement arithmetic statements Rename columns for output Retrieve rows using comparison operators	TEXT1: Ch 3	Lab Exercise #2 Assignment #1

Module	Topic(s)	Learning Outcomes Addressed	Learning Experiences	Readings/Resources (to be completed before the class or for use in the class)	Assessments
			Use distinct to eliminate duplicate rows Define the logical operators and, or and not Retrieve rows using like, between .and, in and is null operators Sort the result set using order by		
3	**Join Operation**	8, 10, 14	Code inner joins to retrieve rows from multiple tables Describe the use of a self-join Define table aliases Code joins with implicit inner join syntax Code outer joins to retrieve rows form multiple tables Describe the various set operator	TEXT1: Ch 4	Lab Exercise #3 Assignment #2
	Use of Functions	7, 8, 11	Code queries that use aggregate functions	TEXT1: Ch 5	Lab Exercise #4 Assignment #3

Module	Topic(s)	Learning Outcomes Addressed	Learning Experiences	Readings/Resources (to be completed before the class or for use in the class)	Assessments
			Code SQL queries with max, min, count, avg, and sum group functions Describe the use of the group by and having clauses Define the differences between having and where clauses		
	Working with tables, numeric data, NVL	2, 3, 5, 6, 13	Define how to: -create a test table, insert new data to a table, update existing data, delete data from a table, work with date/time data Define the: -use of commit and rollback for changes, , various data types used in Oracle, functions for working with numeric data Define functions for working with null data values, nvl and nvl2 Convert data from one type to another	TEXT1: Ch 7, 8	Lab Exercise #5 Assignment #4

Module	Topic(s)	Learning Outcomes Addressed	Learning Experiences	Readings/Resources (to be completed before the class or for use in the class)	Assessments
	Normalization and different keys.	6, 2, 3, 10, 11, 12	Describe the: - basic steps to design a database, relationships between tables, normalization process Define how to: - define data elements, identify tables and assign columns, identify primary and foreign keys, primary key constraint, a foreign key constraint, a check constraint Create: -tables, and index, a sequence Alter the columns of a table Drop a table Truncate a table	TEXT1: Ch 9, 10	Lab Exercise #6 Assignment #5
	Introduction to PLSQL.	7, 8, 9, 10, 13, 14	Define: - anonymous PL/SQL, how a cursor is used, how to handle exceptions, the use of bind variables Code: -and declare variables in PL/SQL, If statements, loops	TEXT1: Ch 13	Lab Exercise #7 Assignment #6

Module	Topic(s)	Learning Outcomes Addressed	Learning Experiences	Readings/Resources (to be completed before the class or for use in the class)	Assessments
	Working on Stored Procedures	9, 10, 11, 13, 14	Create: -and call a stored procedure, a stored procedure that inserts a row, a stored procedure drops a table Code: - optional parameters, input and output parameters Define how to raise errors	TEXT1: Ch 15	Lab Exercise #8 Assignment #7
	Introduction to MySQL	1, 2, 3, 4, 6,	Create simple queries in MySQL Use column aliases in MySQL Retrieve rows using group by and having clauses Limit search results in MySQL with the limit clause Use joins to retrieve rows from multiple tables in MySQL Retrive rows using inner and outer joins	TEXT2: Ch 6, 7	Lab Exercise #9 Assignment #8
	DML operation in MySQL	7, 9, 10, 12	Insert, delete and update rows with MySQL Use replace and truncate statement in MySQL	TEXT2: Ch 4, 5	Lab Exercise #10 Assignment #9

Module	Topic(s)	Learning Outcomes Addressed	Learning Experiences	Readings/Resources (to be completed before the class or for use in the class)	Assessments
			Define data types used in MySQL Create tables, indexes and database in MySQL Delete tables and indexes Alter existing table structures in MySQL		
	Stored Procedures in MySQL	9, 10, 11, 12, 13, 14	Create stored procedures in MySQL		

Please note: this course schedule may change as resources and circumstances require.

Student Evaluation

Evaluation	Format	Learning Outcomes Addressed	Due in Week #	%
Mid term exam	Paper	1-7	7	30
Final exam	Paper	1-14	15	30
Quizzes, assignments, and labs.	Electronic and paper	1-14	Weekly	40
Total				100

Post Graduate Certificate Students:

In addition to meeting all program specific course and credit requirements, students must have Cumulative Program Grade Point Average (CPGPA) ≥ 60 in order to be eligible for graduation.

The program handbook is available on our learning management system. If you cannot find it please contact the program coordinator. **It is your responsibility to read, understand, and follow the program handbook.**

Policies and Procedures

It is the student's responsibility to be aware of the College Academic Regulations which can be found on the following website: http://www.humber.ca/academic-regulations

Academic Integrity

Academic integrity is essentially honesty in all academic endeavors. Academic integrity requires that students avoid all forms of academic misconduct or dishonesty, including plagiarism, cheating on tests or exams or any misrepresentation of academic accomplishment.

Academic Concern/Appeals

If a student has questions or concerns regarding a grade on an assignment or test, the student should discuss the matter with the faculty member. The Program Co-ordinator and/or the Associate Dean may be asked to assist if the faculty member and student are unable to resolve issues. For additional information please refer to Section 18 of College's Academic Complaint and Appeal Policy at the web site identified above.

Prior Learning Assessment Recognition (PLAR)

Course credits may be granted in recognition of prior learning, and that Application for Consideration is made through the Office of the Registrar at http://humber.ca/myhumber/how-apply-plar

Each course outline must indicate method(s) of assessment.

Challenge Exam	***Portfolio***	***Skills Test***	***Interview***	***Other (Specify)***	***Not Available For PLAR***
X		X			

Accessible Learning Services

Humber strives to create a welcoming environment for all students where equity, diversity and inclusion are paramount. Accessible Learning Services facilitates equal access for students with disabilities by coordinating academic accommodations and services. Staff in Accessible Learning Services are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. If you require academic accommodations, contact:

Accessible Learning Services: http://www.humber.ca/student-life/swac/accessible-learning

North Campus: (416) 675-6622 X5090

Lakeshore Campus: (416) 675-6622 X3331

Disclaimer While every effort is made by the professor/faculty to cover all material listed in the outline, the order, content, and/or evaluation may change in the event of special circumstances (e.g. time constraints due to inclement weather, sickness, college closure, technology/equipment problems or changes, etc.). In any such case, students will be given appropriate notification in writing, with approval from the Dean (or designate) of the School.

Appendix

Essential Employability Skills (MAESD Requirements)	**Graduates of the program reliably demonstrate the ability to:**
Communication	
Reading	1. communicate clearly, concisely and correctly in the written, spoken and visual form that fulfills the purpose and meets the needs of the audience 2. respond to written, spoken, or visual messages in a manner that ensures effective communication
Writing	
Speaking	
Listening	
Presenting	
Numeracy	
Understanding and Applying Mathematical Concepts and Reasoning	3. execute mathematical operations accurately
Analysing and using Numerical Data	
Conceptualizing	
Critical Thinking & Problem Solving	
Analysing	4. apply a systematic approach to solve problems 5. use a variety of thinking skills to anticipate and solve problems
Synthesising	
Evaluating	
Decision-Making	
Creative and Innovative Thinking	
Information Management	
Gathering and managing information	6. locate, select, organize and document information using appropriate technology and information systems 7. analyse, evaluate and apply relevant information for a variety of sources
Selecting and using appropriate tools and technology for a task or project	

Essential Employability Skills (MAESD Requirements)	**Graduates of the program reliably demonstrate the ability to:**
Computer literacy	
Internet skills	
Interpersonal	
Teamwork	8. show respect for the diverse opinions, values, belief systems n and contributions of others 9. interact with others in groups or teams in ways that contribute to the effect working relationships and the achievement of goals
Relationship management	
Conflict resolution	
Leadership	
Networking	
Personal	
Managing self	10. manage the use of time and other resources to complete projects 11. take responsibility for one's actions, decisions, and consequences
Managing change and being flexible and adaptable	
Engaging in reflective practice	
Demonstrating personal responsibility	