AML-3406 AL and ML Capstone Project

Computer Studies

Course Number:	Co-Requisites:	Pre-Requisites:
AML-3406	N/A	AML-2103 and AML-2203 and CBD-3335 and AML-2404
Prepared by:	William Pourmajidi, Professor	
Approved by:	Chris Slade, Dean of Information Technology	
Approval Date:	Friday, May 22, 2020	
Approved for Academic Year:	2020-2021	
Normative Hours:	90.00	

Course Description

Employers expect candidates to have experience with teamwork in project environments. In this course students (1) work on concrete goals in a small team; (2) design, develop, and implement AI and ML solution based on pre-set requirements; and (3) manage deadlines, milestones, and deliverables with a client. Students build a complete, deliverable product and present it to the client in a professional manner. The overall product is judged in a competition setting, and students are given the chance to win awards. The design must be supported by documented market research, a marketing plan and a business plan.

Course Learning Outcomes/Course Objectives

1. **Propose an AI and ML project with data analysis for a company**
   - 1.1 Analyze company needs by integrating considerations from the client and using AI, ML, and data mining best practices
   - 1.2 Analyze whether data is available or needs to be retrieved
   - 1.3 Analyze what data processing techniques need to be applied to the dataset
   - 1.4 Document the requirements for the project and include technical details.

2. **Analyze and design an AI, ML, and data mining solution for the company.**
   - 2.1 Design am AI, ML, and data mining framework by using data from company or by retrieving data from available open source datasets
   - 2.2 Identify key deliverables for the project
   - 2.3 Assign deliverables to team members
   - 2.4 Create a project plan

3. **Assess the elements of creating effective teams in the work place**
    - 3.1 Organize research meeting with team members
    - 3.2 Organize meetings with the faculty advisor(s).
    - 3.3 Generate progress report

4. **Develop an AI, ML, and data mining technical report.**
    - 4.1 Generate a technical report that includes the key components of a technical report: Abstract, Introduction, Methodology, Results, Conclusion, and References.
    - 4.2 Incorporate content from weekly progress report to the final technical report

5. **Explain final project in a presentation.**
    - 5.1 Organize presentation content based on the components of the technical report.
    - 5.2 Present the completed project to the supervisor and other classmate(s)

Relationship to Vocational Learning Outcomes

This course provides the opportunity for you to achieve the following Program Vocational Learning Outcomes (VLO) which will be taught and evaluated at an taught (T), assessed (A) or culminating peformance (CP) level:

AIMT - Artificial Intelligence & Machine Learning

VLO 1	Collect, manipulate and mine data sets to meet organizational need. (T, A)
VLO 2	Recommend different systems architectures and data storage technologies to support data analytics. (T, A)
VLO 3	Design and apply data models that meet the needs of a specific operational/business process. (T, A)
VLO 4	Develop software applications to manipulate data sets, correlate information and produce reports. (T, A)
VLO 5	Design and present data visualizations to communicate information to business stakeholders (T, A)
VLO 6	Apply data analytics, business intelligence tools and research to support evidence-based decision making. (T, A)
VLO 7	Identify and assess data analytics business strategies and workflows to respond to new opportunities or provide project solutions. (T, A)
VLO 8	Implement data solutions in compliance with corporate policies, ethical standards, and industry regulations. (T, A)
VLO 9	Select and apply appropriate artificial intelligence and machine learning techniques and algorithms that meet the needs of a specific operational/business process. (T, A)

Learning Resources

Supplemental:

- Personal Computer

Student Evaluation

Written Technical Report (30%)

Weekly Progress Reports (45%)

- 15 Weekly reports (3% each)

Presentation (25%)

Grade Scheme

The round off mathematical principle will be used. Percentages are converted to letter grades and grade points as follows:

Mark (%)	Grade	Grade Point	Mark (%)	Grade	Grade Point
94-100	A+	4.0	67-69	C+	2.3
87-93	A	3.7	63-66	C	2.0
80-86	A-	3.5	60-62	C-	1.7
77-79	B+	3.2	50-59	D	1.0
73-76	B	3.0	0-49	F	0.0
70-72	B-	2.7			

Prior Learning Assessment and Recognition

Students who wish to apply for prior learning assessment and recognition (PLAR) need to demonstrate competency at a post-secondary level in all of the course learning requirements outlined above. Evidence of learning achievement for PLAR candidates includes:

- Not Applicable: Post-graduate course

Course Related Information

This is a project and discussion-based learning course consisting of a variety of teaching environments. All course work is completed according to the syllabus. Students should take careful notes as not all material can be found in the textbook or handout materials. Attendance is expected and necessary to be successful.

College Related Information

Academic Integrity

Lambton College is committed to high ethical standards in all academic activities within the College, including research, reporting and learning assessment (e.g. tests, lab reports, essays).
The cornerstone of academic integrity and professional reputation is principled conduct. All scholastic and academic activity must be free of all forms of academic dishonesty, including copying, plagiarism and cheating.

Lambton College will not tolerate any academic dishonesty, a position reflected in Lambton College policies. Students should be familiar with the Students Rights and Responsibilities Policy, located at lambtoncollege.ca.

The policy states details concerning academic dishonesty and the penalties for dishonesty and unethical conduct.

Questions regarding this policy, or requests for additional clarification, should be directed to the Lambton College Student Success Department.

Students with Disabilities

If you are a student with a disability please identify your needs to the professor and/or the Accessibility Centre so that support services can be arranged for you. You can do this by making an appointment at the Accessibility Centre or by arranging a personal interview with the professor to discuss your needs.

Student Rights and Responsibility Policy

Acceptable behaviour in class is established by the instructor and is expected of all students. Any form of misbehaviour, harassment or violence will not be tolerated. Action will be taken as outlined in Lambton College policy.

Date of Withdrawal without Academic Penalty

Please consult the Academic Regulations and Registrar's published dates.

Waiver of Responsibility

Every attempt has been made to ensure the accuracy of this information as of the date of publication. The content may be modified, without notice, as deemed appropriate by the College.

Students should note policies may differ depending on the location of course offering. Please refer to campus location specific policies:

LAMBTON COLLEGE POLICIES – applicable to all Lambton College students.

- Student Rights & Responsibilities & Discipline policy (2000-5-1)
- Test & Exam Writing Protocol (2000-1-6)
- Evaluation of Students (2000-1-3)
- (https://www.lambtoncollege.ca/custom/Pages/Policies/Policies.aspx)

CESTAR COLLEGE:

- https://www.lambtoncollege.ca/Programs/International/Lambton_in_Toronto/Student_Policies/

QUEENS COLLEGE:

- https://www.lambtoncollege.ca/Programs/International/Lambton_in_Mississauga/Student_Policies/

Note: It is the student’s responsibility to retain course outlines for possible future use to support applications for transfer of credit to other educational institutions.