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CURRICULUM GUIDE: OFFICIAL COURSE OUTLINE

Course Code	CPSC 130	Course Title	Introduction to AI: Applications and Ethics			
Credit Value	3	Department	Mathematics and Science			
No. of weeks	14	Hrs. per week	*Lecture*	*Tutorial*	*Laboratory*	*Total*
			3	0	1	4
Course Description	This introductory course provides students with a comprehensive overview of Artificial Intelligence (AI). Students will explore the history, theory, and real-world applications of AI while understanding ethical, philosophical, and societal considerations. The course covers basic AI models, algorithms, and an introduction to prompt engineering which will help students interact appropriately and effectively with modern AI tools in their future studies and careers. Students will engage with practical AI tools, explore key concepts, and understand AI's impact on various sectors.					
Prerequisite(s)	ENGL 100					

Initial Articulation Targets	*UBC*	*SFU*	*UVic*	*UNBC*	*TRU*
	CPSC 1XX (3)	CMPT 1XX (3)	CSC 1XX (1.5)	CPSC 1XX (3)	COMP 1XXX (3)
	For updated information on the transferability of this course, please consult the BC Transfer Guide, www.bctransferguide.ca				

Learning Outcomes

Upon successful completion of this course, the student will be able to:

- Describe the history and evolution of AI.
- Explain key AI concepts, theories, and models.
- Explain competing theories of mind and personhood, and their relevance to AI.
- Explain basic machine learning algorithms / models and their applications.
- Apply prompt engineering techniques to interact effectively with various AI models.
- Identify real-world applications of AI across industries.
- Discuss the impact of AI on society, economy, and the workforce.
- Analyze AI's ethical implications and responsible usage.

Content

Core topics – all of the following will be covered:

- Introduction to AI and its History
  - What is AI? Definitions and key concepts.
  - Historical evolution: Turing Test, Deep Blue, AlphaGo.
  - Types of AI: Narrow AI vs. General AI.
- AI Theories and Models
  - Search algorithms, logic, and decision-making.
  - Machine learning basics: Supervised, unsupervised, and reinforcement learning.
  - Neural networks and deep learning basics.

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www.alexandercollege.ca

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- AI Algorithms and Basic Models
  - Algorithms: Search algorithms, decision trees, clustering, classification.
  - Machine learning models: Training, testing, and validation.
  - Introduction to Natural Language Processing (NLP) and computer vision.
- Prompt Engineering for AI
  - Introduction to prompt engineering: Key concepts and importance.
  - Types of prompts: Instructional, creative, factual, and contextual.
  - Crafting effective prompts for various AI applications: Writing, customer service, data extraction, etc.
  - Experimenting with AI tools and voice assistants.
- AI Applications
  - AI in healthcare, finance, transportation, arts, and other sectors.
  - Everyday AI: Virtual assistants, recommendation systems, smart devices.
  - Business applications: Automation, customer service, decision-making.
- AI Ethics
  - Global AI regulations and frameworks.
  - Ethical challenges: Bias, privacy, accountability, and academic integrity.
  - AI's societal impact: Jobs, privacy, and human rights.
  - Philosophical and societal considerations.

Additional topics may also be covered, at the discretion of the instructor.
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<tr><td>Methods of Instruction</td><td>Lectures, assignments, computer laboratory work, projects, assigned reading, quizzes, examinations.</td></tr>
<tr><td>Required Textbook(s)</td><td>The following textbook(s) is/are required, or approved equivalent(s).

Coeckelbergh, M. (2020). AI ethics. The MIT Press.

Mitchell, M. (2019). Artificial intelligence: A guide for thinking humans. Farrar, Straus and Giroux</td></tr>
<tr><td>Required Equipment and Technology</td><td>Students are required to have a computer with internet access.
The following resources are provided by the College:
• Office 365
• Student email</td></tr>
<tr><td>Homework Hours</td><td>At minimum, students can expect one hour of homework for every hour of instructional time.</td></tr>
<tr><td>Evaluation</td><td>
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<tr><th>Component</th><th>% Value</th></tr>
<tr><td>Assignments and quizzes</td><td>10-20%</td></tr>
<tr><td>Labs</td><td>10-20%</td></tr>
<tr><td>Midterm examinations (1-2)</td><td>20-40%</td></tr>
<tr><td>Final examination</td><td>30-35%</td></tr>
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<tr><td>Completion Requirements</td><td>The minimum grade to pass this course is D (50%). Unless otherwise stated, a minimum grade of C- (55%) is required for this course to fulfil a prerequisite.</td></tr>
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Course Designer(s)	Wei Li, Ph.D., Director of Academic Innovation and Research Infrastructure Kelly Cheung, PhD., Department Head of Mathematics and Science, Alexander College	Consultant(s), *if applicable*	John Edgar, M.Sc., School of Computing Science, Simon Fraser University
Dean's Approval	Steven Roe, Ph.D., Dean of Arts and Sciences, Alexander College	Dean's Approval Date	January 16, 2025
Education Committee Approval Date	January 16, 2025	First Term Offered	Winter 2026
Last Review Date	January 16, 2025	Next Review Date	January 16, 2030
Revision History			