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### ECE 470 – Artificial Intelligence

Term –Summer 2018(201805)

#### Instructor

Dr. Awos Kanan

Phone:

E-mail: [akanan@uvic.ca](mailto:akanan@uvic.ca)

#### Office Hours

Days: Wednesday, Friday

Time: 10:30 am - 11:20 am

Location: EOW 431

#### Course Objectives

The objectives of this course are to introduce the fundamental concepts of artificial intelligence, and expose students to its different branches and their practical applications.

#### Learning Outcomes

Upon completion of this course, students will be able to:

- Understand the basic concepts of AI and the problem domains it is suitable for.
- Analyze and formulate a given problem, and select the appropriate AI technique(s) to solve it.
- Apply different AI techniques to solve real-world problems.
- Evaluate the performance of AI techniques using standard metrics and benchmark datasets.

#### Syllabus

- **Introduction to AI**
- **Search Techniques for AI**
  - Uninformed Search
  - Informed (Heuristic) Search
  - Local Search and Optimization Problems
  - Adversarial Search
  - Constraint Satisfaction Problems
- **Knowledge and Reasoning**
  - Logical Agents, Propositional Logic and First-Order Logic
  - Reasoning with Uncertainty (Bayesian Networks)
  - Knowledge Representation
- **Machine Learning**
  - Supervised Learning
  - Unsupervised Learning
- **Deep Learning (Basics)**
- **AI Applications**

A-Section(s): A01 / CRN 30297

Days: Tuesday, Wednesday, Friday

Time: 9:30 am -10:20 am

Location: MacLaurin Building, Room D288

**Required Text**

Title: Course notes available online

Author: Awos Kanan

Publisher: -

Year: 2018

**Optional Text**

Title: Artificial Intelligence: A Modern Approach

Author: S. Russel and P. Norvig

Publisher: Prentice Hall, 3rd Ed.

Year: 2010

**Assessment:**

Assignments:	30%	
Mid-term	30%	Date: July 4, 2018 (tentative)
Quiz	10%	
Project	30%	

The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar.

<https://web.uvic.ca/calendar2018-05/undergrad/info/regulations/grading.html>

**There will be no supplemental examination for this course.**

**Note to students:** Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair's Assistant to set up an appointment.

**Accommodation of Religious Observance:**

<https://web.uvic.ca/calendar2018-05/undergrad/info/regulations/religious-observanc.html>

**Policy on Inclusivity and Diversity:**

<https://web.uvic.ca/calendar2018-05/general/policies.html>

**Standards of Professional Behaviour:** You are advised to read the Faculty of Engineering document Standards for Professional Behaviour, which contains important information regarding conduct in courses, labs, and in the general use of facilities.

<https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf>

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the entry in the current Undergraduate Calendar for the UVic policy on academic integrity.

<https://web.uvic.ca/calendar2018-05/undergrad/info/regulations/academic-integrity.html>

**Equality:** This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Resource Centre for Students with a Disability located in the Campus Services Building.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive and safe learning and working environment for all its members.

**Course Lecture Notes:** Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.