**AI in Medicine**

Pascal Tyrrell PhD

Department of Medical Imaging, Faculty of Medicine

Institute of Medical Science, Faculty of Medicine

Department of Statistical Sciences, Faculty of Arts & Science

**Course Summary**

Artificial Intelligence (AI) is a rapidly developing field and has been revolutionizing the medical field to benefit medicine. This course uses recent literature, papers, and examples to look at the applications of AI tools to see how they can directly assist patients and medical professionals. This short online course is primarily for students in a MSc, PhD, or residency/ fellowship program that would like to gain insight on the emerging field. Students will understand how AI utilizes clinical data to generate useful outcomes. Some topics discussed include challenges in the medical field and how AI can help, applications of AI/ML, and future of AI in medicine.

**Course Outline**

|  |  |
| --- | --- |
| Week Number | Lecture Topic |
| Week 1 | Course introduction and introduction to AI, ML, and Big Data |
| Week 2 | Challenges in the medical field and how AI can help |
| Week 3 | Computer Vision and its application in medicine |
| Week 4 | Key concepts and How to critically review AI/ML publications |
| Week 5 | Data ownership, data sharing/ policy, and ethics |
| Week 6 | Adoption of AI/ML driven software in healthcare and the future of AI in Medicine |

**Course evaluation scheme**

|  |  |
| --- | --- |
| Criterion | Weight (%) |
| Participation in seminars/meetings and other educational program activities | 10 |
| Student collaboration | 10 |
| Critical appraisal | 20 |
| Final project proposal | 60 |
| Total | 100 |

This Module will assign a Pass/Fail grade.

**Tentative schedule:**

All lectures will be available online as video recordings (see <http://www.tyrrell4innovation.ca/>). There will be discussion sessions (1.5 hrs) held every other week Wednesday evenings at 6PM. This module is offered in the Fall and Spring sessions.