

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
Week 2	Challenges in the medical field and how AI can help
Week 3	Image recognition in medical imaging
Week 4	How to critically review AI/ML publications / Data ownership, data sharing, and ethics
Week 5	Real world applications of AI/ML in medicine / adoption of AI/ML driven software in healthcare
Week 6	Future of AI in Medicine

Course evaluation scheme

Criterion	Weight (%)
Participation in seminars/meetings and other educational program activities	10
Student mentoring	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 with the first session on September 23rd, 2020 and the last session December 2nd, 2020.