

Brock University - COSC 4P80 - Artificial Neural Networks Winter Term, 2019

Instructor: Earl Foxwell

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Classes: Mondays 19:00-22:00 PLZ409

This course teaches you about Artificial Neural Networks, and several variations thereof. Upon completion of this course, you should have a good understanding of how to design and train feed-forward networks, and of clustering techniques.

Course Materials:

Textbook: Neural Networks: A Systematic Introduction (Rojas)

Additional Reading: Elements of Artificial Neural Networks (available in the Brock Library)

A Brief Introduction to Neural Networks (David Kriesel)

Evaluation:

Assignments (2):	40%
Seminar:	20%
Participation:	5%
Project:	35%

Note: Attendance to seminars is mandatory. Participation *can* go into the negative.

Course Overview:

- Introduction
- Single-Layer Networks (Perceptrons)
- Multilayer Feed-Forward Networks
- Activation Functions
- Back Propagation
- Variants and other Training Schemes
- Self-Organizing Maps (Kohonen Maps)
- Additional topics (e.g. Hopfield Networks)

Seminar:

For this course, each student will make a presentation, in class, on a preapproved topic. Refer to the seminar specification on the course website for details.

You must make a presentation, and attend at least two presentation days in order to receive credit for this course.

Project:

Each student will complete a larger project, preapproved by the course instructor. Refer to the project specification on the course website for details. You must earn at least 40% on the final project to receive credit for this course.

Language:

You are free to use whatever language you please for the assignments (and project, if coding is involved). In addition, you may use additional external libraries, so long as their use is fully-documented in your submission.

Additional Notes:

- Assignments will only be graded if electronically submitted by the posted due date. No lates will be accepted.
- Please read the department's policy on medical notes on the COSC home page. Other reasons may be used for granting extensions or other accommodations, at the instructor's discretion, but only if the instructor is contacted *in advance* of assignment due dates.
- Submitted programs will be carefully examined for plagiarism. Plagiarism is a serious offense and will be treated accordingly. See <http://www.cosc.brocku.ca/about/policies/plagiarism> for details.
- As part of Brock University's commitment to a respectful work and learning environment, the university will make every reasonable effort to accommodate all members of the university community with disabilities. If you require academic accommodations related to a permanent disability to participate in this course, you are encouraged to contact the Student Development Centre Services for Students with Disabilities (4th Floor Schmon Tower ext. 3240) and also to discuss these accommodations with the instructor.
- March 8th is the last day for voluntary withdrawal without academic penalty. 15% of the final grade will be available to students by March 1st.

Note: Content has been generously provided by Dr. Beatrice Ombuki-Berman and Dave Bockus.