# Lakehead University

(2024W) COMP 5013WA-Pattern Recognition

Department of Computer Science

Winter 2024

**Instructor Information**

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| --- | --- |
| Instructor: | Ali A. Nazari-Shirehjini |
| Office Location: | AT5021  |
| Telephone: | (807) 343-8010, extension 8235 |
| **E**mail: | ali.nazari@lakeheadu.ca |
| Office Hours: | Approach me right after the lecture without any appointment. |
| Otherwise, book appointments online via the following link <https://calendar.app.google/vHGZqeAjXrqVkktx6> |
| **Monday 11:30 am - 12:00 pm** |
| **Wednesday 11:30 am - 12:00 pm** |

**Teaching Assistant (TA) Information**: TBA

**Course Identification**

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| --- | --- |
| Course Number: | Computer Science 5013WA |
| Course Name:  | Pattern Recognition  |
| Course Location: | RB-2047 |
| Class Times:  | Mondays and Wednesdays, from 10:00 to 11:30. First class on Monday January 8th, 2024No class on Monday April 8th (Monday April 8th is a make-up day for classes that did not take place on Good Friday) |
| **Labs** | **None** |
| Prerequisite(s):  |  |
| **Course** Type | C: Engineering, Mathematical and Natural Sciences |

**Course Description/Overview** – “”

**Course Resources**

Course Website(s)

* myCourseLink: https://mycourselink.lakeheadu.ca/d2l/home/124409

Required Course Text (The Main Textbook):

* Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani. An Introduction to Statistical Learning. Second Edition, ISBN 978-1-0716-1417-4. <https://doi.org/10.1007/978-1-0716-1418-1>

Additional Text and Material

* Ulisses Braga-Neto. Fundamentals of Pattern Recognition and Machine Learning. 2020, Springer International Publishing, ISBN 9783030276553 (Print), ISBN 9783030276560 (Online).

<https://doi.org/10.1007/978-3-030-27656-0_1>

**Course Schedule/Outline**

|  |  |
| --- | --- |
| Date  | Main Topics |
| Week 1 | Introduction |
| Week 2 | Statistical Learning |
| Week 3 | Statistical Learning |
| Week 4 | Linear Regression |
| Week 5  | Linear Regression |
| Week 6 | Classification |
| Week 7 | KNN and Logistic Regression |
| Week 8 | Linear Discriminant Analysis (LDA) |
| Week 9 | Linear Discriminant Analysis (LDA) |
| Week 10 | TBA |
| Week 11 | TBA |
| Week 12 | TBA |
| Week 13 | TBA |

 Last day to drop the course Friday, March 8, 2024: Check the university website for [academic schedule of dates](https://csdc.lakeheadu.ca/~/Catalog/ViewCatalog.aspx?pageid=viewcatalog&catalogid=30&topicid=48548&topicgroupid=31622)

**Assignments and Evaluations**

|  |  |  |
| --- | --- | --- |
| Item | Date(s) | Value |
| Assignments (teams of 3)  | Week 4, 6, 8 | 30% |
| 1 Mid-Term Test | Monday, February 26, 2024 | 30% |
| Final Examination | TBA. Friday April 12, 2024 - Monday, April 22, 2024 | 40% |
| Total |  | 100 |

**The midterm exam** covers the material presented **in class prior to the midterm day**. You can use the Main Textbook during the exam (no electronic devices are allowed during the exam!). **The final exam** covers all material presented during the term. The exam date is set by the university. You can use the Main Textbook during the exam (no electronic devices are allowed during the exam!).

**Projects/Assignments**

Students are expected to follow a specific guideline (provided by the instructor) when preparing their assignment report, failing to comply with the provided guideline will be **penalized** accordingly. There will be a **penalty** for late submission (**15% each day**). If you are expecting to be late contact me ASAP and you must have a valid reason.

**Course Policies**

Important announcements are posted to D2L and may be also sent to your university e-mail directly. Be sure to consult the website and your e-mail account regularly.

Students are expected to read and agree to the following:

**Academic Integrity Statement:**

I understand and agree that:

(1) Unless otherwise allowed by the course instructor, I must complete the assignments in this course without the assistance of anyone else.

(2) Unless otherwise allowed by the course instructor, I must not access any sources or materials (in print, online, or in any other way) to complete any course exam.

I further understand and agree that, if I violate either of these two rules or if I provide any false or misleading information about my completion of course assignments or exams, I may be prosecuted under the Lakehead University Student Code of Conduct – Academic Integrity, which requires students to act ethically and with integrity in academic matters and to demonstrate behaviors that support the University’s academic values.

**Copyright Compliance:**

I understand and agree that all instructional, reference, and administrative materials to which I am given access in this course (the "course materials"), whether they consist of text, still or kinetic images, or sound, whether they are in digital or hard copy formats, and in whatever media they are offered, are protected in their entirety by copyright, and that to comply with this copyright and the law

(1) I may access and download the course materials only for my own personal and non-commercial use for this course; and

(2) I am not permitted to download, copy, or store (in any medium) any text, image, or sound component of the course materials for any other purpose whatsoever, or to forward or share, transmit, broadcast, show, post or play in public, adapt, or change in any way any text, image, or sound component of the course materials, except as expressly authorized, and only to the extent authorized, in writing, by the course instructor."

I further understand and agree that, if I infringe the copyright of the course materials in any way, I may be prosecuted under the Lakehead University Student Code of Conduct – Academic Integrity, which requires students to act ethically and with integrity in academic matters and to demonstrate behaviours that support the University’s academic values.

**Regulations**

It is the responsibility of each student registered at Lakehead University to be familiar with, and comply with all the terms, requirements, regulations, policies, and conditions in the Lakehead University Academic Calendar. This includes, but is not limited to, Academic Program Requirements, [Academic Schedule of Dates](https://www.lakeheadu.ca/students/academic-success/important-dates), [University and Faculty/School Policies and Regulations](https://www.lakeheadu.ca/about/policies-procedures) and the Fees and Refund Policies and Schedules.

**Academic Integrity**

A breach of Academic Integrity is a serious offence. The principle of Academic Integrity, particularly of doing one’s own work, documenting properly (including use of quotation marks, appropriate paraphrasing and referencing/citation), collaborating appropriately, and avoiding misrepresentation, is a core principle in university study. Students should view the [Student Code of Conduct - Academic Integrity](https://www.lakeheadu.ca/sites/default/files/policies_procedures/Student%20Code%20of%20Conduct%20-%20Academic%20Integrity_0.pdf) for a full description of academic offences, procedures when Academic Integrity breaches are suspected and sanctions for breaches of Academic Integrity.

**Supports for Students** – there are many resources available to support students. These include but are not limited to:

* [Health and Wellness](https://www.lakeheadu.ca/current-students/student-health-and-counselling-centre)
* [Student Success Centre](https://www.lakeheadu.ca/current-students/student-success-centre)
* [Student Accessibility Centre](https://www.lakeheadu.ca/current-students/student-services/accessibility/)
* [Library](https://library.lakeheadu.ca/)
* [Lakehead International](https://www.lakeheadu.ca/international)
* [Indigenous Initiatives](https://www.lakeheadu.ca/indigenous)

Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities and/or medical conditions to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please contact [Student Accessibility Services](http://studentaccessibility.lakeheadu.ca/)  (SC0003, 343-8047 or sas@lakeheadu.ca)