Introduction

Sandro Cumani

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Course organization

The course will be held by

- Sandro Cumani (sandro.cumani@polito.it)
- Salvatore Sarni (salvatore.sarni@polito.it)

The course consists of 3 hours per week of lessons and 1,5 hours per week of laboratory

- Thursday, 14:30 – 17:30, Lessons — Sandro Cumani
- Friday, 13:00 – 14:30, Laboratory (in class, bring your own laptop) — Sandro Cumani, Salvatore Sarni

Course organization

The lessons will mainly cover theoretical aspects of Machine Learning and Pattern Recognition

The laboratories will allow implementing and employing the techniques presented during lessons

Attendance to laboratories is strongly encouraged. The written exam will have a section that will cover the activities of the laboratory (more details later)

Course organization

The exam consists of two parts:

- A theory part (written exam) — 20 points, minimum mark to pass the exam 10/20
- A practical part (written exam + report) — 10 points, minimum mark to pass the exam 5/10

Course organization

The written part of the examination will cover the machine learning theory presented during lectures **and** the practical part developed during laboratories / at home

It will consist of three or four open questions

Duration: 140 minutes

Bring your own sheet of paper (exercise paper — fogli protocollo)

Course organization

The practical part of the exam will consist in a guided project.

The laboratories will provide a “project” section that will require applying the algorithms to a specific task and analyzing the results

For the project you are required to submit a report that will summarize the findings for the “project” part of the laboratories

The report must be done individually

The evaluation of this part will be based on the report **and** one or more open questions included in the written part of the exam

The written part of the exam **may also include** questions on implementation details (e.g. snippets of code)

Course organization

Since this course presents the basis of Machine Learning, avoid using ML libraries or ML toolboxes for the project (using toolboxes will result in lower marks — one of the goal of the course is that you learn how to implement the approaches)

The laboratories are already organized as to allow you to implement many of the techniques that we will discuss

You can, of course, re-use the code developed during the labs (including snippets provided by us)

If you are in doubt whether you can use some library or not, ASK

Course organization

Notes for previous year students (changes with respect to previous years exam):

- The report and the written parts of the exam must be delivered in the same session (partial marks are not kept for different sessions, but you can modify and resubmit a new report on each session)
- The written exam will include questions on the project, which will be part of the project evaluation
- The project task is fixed, there are no tasks to choose
- Projects are individual
- Submission rules and deadlines have been changed (see the next slides)

Course organization

Project submission window — To take the exam on a given session, you can submit the report:

- from the day after the previous written exam date (or the end of the classes, if it's the first session)
- up to right before the beginning of the written exam of the current session

Should you take the exam more than once, you have to submit a report on each session (even if you don't change anything)

Course organization

The report must be submitted through the teaching portal, section “Work Submission” (Elaborati)

The format should be a `.zip` file, containing

- The report in pdf format
- The source code (python source files, no jupyter notebook or similar)

The file name should be `<student id>_<exam-date>.zip`

Course organization

In the teaching portal you will find the text of the laboratories and the slides used during classes. These will come in two versions:

- Slides projected during the classes
- Print-friendly version with less color

Reference books:

[1] Christopher M. Bishop. 2006. Pattern Recognition and Machine Learning (Information Science and Statistics). Springer-Verlag, Berlin, Heidelberg.

[2] Kevin P. Murphy. 2012. Machine Learning: A Probabilistic Perspective. The MIT Press.