NUMERICAL ANALYSIS FOR PARTIAL DIFFERENTIAL EQUATIONS
A.Y. 2019/2020

Lecturer: Prof. A. Quarteroni Teaching Assistant and Tutor: Dr. F. Regazzoni

Course information

Timetable

- Monday (11.15-13.15) room 9.0.3
- Tuesday (9.15-11.15) room 21.S.1
- Tuesday (13.15-15.15) room 2.1.3
- Thursday (9.15-11.15) room C

Textbook

A. Quarteroni, *Numerical Models for Differential Problems*, 3rd edition, Springer, 2018

Office hours

Upon demand. Please send an email to either alfio.quarteroni@polimi.it or francesco.regazzoni@polimi.it.

Instructions and guidelines for the exam

The final exam consists of two parts: a written examination and a course project.

1. Written examination.
   - The written exam is 2 hours long with open questions. It takes place in the computer room. The exam covers all the theoretical and practical subjects considered at the lectures and exercise/lab sessions.
   - Part of the questions and problems are solved numerically using MATLAB; the exam includes the implementation and programming of numerical algorithms.
   - The problems mainly focus on definitions, application of important lemmas and theorems, and important examples. Light calculations may be needed.
   - The use of any form of course material is not allowed. The questions will be answered without books, notes, etc.
   - The maximum grade achievable with the written examination is 27.

2. Course project.
   As part of the assigned work for this course, students are required to complete a project on their own. Each student can decide to carry out a ***short*** project or a ***regular*** project.

General guidelines (for both short and regular projects).

- The list of projects will be presented at the beginning of the course.
- Any course project has to be agreed on by the lecturer.
- The projects can be carried out in pairs.

***Short* projects guidelines**. The *short* project consists of one presentation.

- Each student works on a problem related to the content of the course.
- The **last week** of the course every student will present her/his project. Presentations last 10 minutes plus 5 minutes for questions. Students can use slides.
- The assessment of the project will be based on subject knowledge matters, oral delivery, quality of the work, demonstration of teamwork and individual contributions.
- The scheduling of project presentations will be communicated in due time and made available on the course website.
- The maximum grade achievable with the *short* project is +1 point.

***Regular* projects guidelines**. The *regular* project consists of one brief project's overview, one presentation and a short report.

- Each student works on a problem related to the content of the course. The project must focus on both theoretical and computational aspects related to the lecture topics.
- Students are allowed to choose a project that is related to their master thesis.
- The assessment of the project will be based on subject knowledge matters, oral delivery, quality of the work, demonstration of teamwork and individual contributions.
- The assessment of the project will be based on the following steps
  - The **last week** of the course every student will present a brief overview and plan of her/his project. This presentation lasts 5 minutes plus 5 minutes for questions. Students can use slides.
  - The final project's presentation lasts 15 minutes plus 10 minutes for questions and can be given in any of the sessions scheduled after the course. **One week** before the final presentations, students have to submit their final project report and the code to the Lecturer.
- The scheduling of *regular* project presentations will be communicated via email and made available on the course website at the end of the semester.
- The maximum grade achievable with the *regular* project is +5 points.