

## Introduction to the Finite Element method - 1st Semester, 2015

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### Agenda

Lecture	Date	Subject
1	15/03	Galerkin approximations I
2	22/03	Feriado Pascoa
3	29/03	Galerkin approximations II
4	05/04	The spaces of FEM I
5	12/04	The spaces of FEM II
6	19/04	The spaces of FEM III
7	26/04	Interpolation error and convergence I
8	03/05	Interpolation error and convergence II
9	10/05	Application to convection-diffusion-reaction problems
10	17/05	Application to convection-diffusion-reaction problems
11	24/05	Application to linear elasticity
12	31/05	Application to linear elasticity
13	07/06	Mixed problems I
14	14/06	Mixed problems II
15	21/06	FEM for parabolic problems I
16	28/06	FEM for parabolic problems II

### Preliminary bibliography

- Galerkin Approximations and Finite Element Methods, Lecture Notes by Ricardo G. Duran.
- Numerical solution of partial differential equations by the finite element method, Claes Johnson, Cambridge University Press, 1982.
- The Mathematical Theory of Finite Element methods. Susanne Brenner and L. Ridgway Scott, Springer, 2008.
- Articles to be distributed along the course.

### Evaluation

- Starting March 29th, every class will begin with one or more students, chosen at random, solving a homework exercise on the blackboard. Time per student: Approx. 15 minutes.
- Optional homeworks or reading assignments can be asked along the semester to help assess the student's learning curve.
- The average of all examinations along the semester will count as 50% of the final grade.
- A written exam after the course will count as the other 50%.