UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Modeling and Simulation II

2122-4-H4102D027-H4102D097M

Aims

To provide basic concept of blood flow numerical analysis and the use of simulation tolls.

Contents

The clerkship will cover theoretical modeling of blood flow fields and numerical analysis.

Detailed program

1) The continuum mechanics approach

2) 3D flow field description: tensor, vector and scalar fields

3) Conservation of mass, momentum and energy balance

4) Advection, diffusion, and divergence free constraint.

5) "Solving" the Navier-Stokes equations with numerical simulations

6) Imposing boundary conditions and understanding numerical simulations

Prerequisites

Basic knowledge of fundamentals in physics, morphology and physiology of the cardiovascular system.

Teaching form

Teaching of basic concepts and practical demonstration on the use of software tools.

Textbook and teaching resource

To be defined.

Semester

First Semester

Assessment method

Evaluation of knowledge of theoretical principle and of the practical skills.

Office hours

Contact by e-mail