

## **HYDRODYNAMIC AND MORPHODYNAMIC STABILITY**

Stefano Lanzoni

### **Program:**

Transition to turbulence. Linear Stability Analysis. Stability of plane-parallel flows. Plane uniform flows. Orr-Sommerfeld equation. Solutions of the Orr-Sommerfeld equation. Linear stability analysis of ideal plane-parallel flows. Linear stability of stratified plane-parallel flows. General criteria for the stability of inviscid stratified flows. Examples of linear and weakly-nonlinear stability analysis of a model problem. Example of weakly nonlinear stability analysis. Stability analysis in morphodynamics.

### **References:**

Lanzoni, S. 2010. Advanced Fluid Mechanics