

# **CFD 100 Series**

**Lecture 00:**

**A brief course overview**



**An introduction  
to Computational  
Fluid Dynamics**

## 0.1

### Overview

### Motivation

- **CFD 100 Series:** An Introduction to Computational Fluid Dynamics
- **CFD 200 Series:** Intermediate Concepts in Computational Fluid Dynamics
- **CFD 300 Series:** Advanced Computational Fluid Dynamics
- .....
- Motivation:
  - 助己，梳理脉络、整理知识
  - 助人，降低门槛、高效学习

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### Overview

### Scope

- Governing Equations
- Finite Difference Method & Finite Volume Method
  - diffusion eq., advection eq., advection-diffusion eq., Poisson eq., stability analysis, linear solver...
- python programming (jupyter notebook)

## 0.1

### Overview

### References

- [Professor Tony Saad](#)
- 我所理解的流体力学
- An Introduction to Computational Fluid Dynamics: The Finite Volume Method
- Numerical Heat Transfer and Fluid Flow
- 计算流体力学及其应用
- 数值传热学
- Numerical Methods for Partial Difference Equations Finite Difference and Finite Volume Methods
- The Finite Volume Method in Computational Fluid Dynamics: An Advanced Introduction with OpenFOAM and Matlab
- Computational Methods for Fluid Dynamics
- Notes on Continuum Mechanics
- [Fluid Dynamics 101](#)