

ChE 204 – Introduction to Transport Phenomena

February 24th to May 30th 2025 – 3 credits

Professor: Raffaella BUONSANTI (raffaella.buonsanti@epfl.ch)

Teachers:

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Time and place: Wednesday 8h15 to 10h, MED 0 1418 (lecture)
Thursday 17h15 to 18h, CE 1 101 (exercises)

Recorded live lectures: They are available on Media Space <https://mediaspace.epfl.ch/channel/ChE-204+Introduction+to+transport+phenomena/29694> for the students enrolled in the course

Course schedule and Information

Module 1: The Bernoulli's equation

Module 2: Advective transport (Integral mass balance and Newton's second law of momentum)

Module 3: Microscopic and Molecular Transport of Heat (Fourier's first law)

Module 4: Microscopic and Molecular Transport of Mass (Fick's law of molecular diffusion)

Module 5: Microscopic and Molecular Transport of Momentum (Newton's law of viscosity)

Supporting Material:

Moodle Page: <https://moodle.epfl.ch/enrol/index.php?id=15322>

Çengel, Cimbala "Fluid Mechanics"

Bird, Stewart, Lightfoot, Klingenberg "Introductory Transport Phenomena"

Wilkes "Fluid Mechanics for Chemical Engineers"

Incropera/DeWitt/Bergan/Lavine "Fundamentals of Heat and Mass Transport"

Evaluation:

Two written exams during the semester. One A4 sheet with formulas is allowed during the exam.

Mid-term Exam: **April 2** 8h00 to 10h00 (tbd)

Final Exam: **May 28** 7h00 to 10h00 ou 8h00 to 11h00 (tbd)

Final Mark: 40% midterm + 60% final exam