Instructor
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Office: Room 5-8H Office Hours: Thu. 1300–1400 or by appointment

Teaching Assistants
Name: Ehsan Shahidi Rocky Chen
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Lab: ETLE 2-005 ETLE 2-005
Lab Hours: Tue, Thu 1830-2000 Tue, Thu 1830-2000

Prerequisites
MEC E 330 (Fluid Mechanics), MEC E 390 (Numerical Methods) or equivalent.

Textbook
Computational Methods for Fluid Dynamics, Ferziger & Perić, Springer, 2005

Homepage
eClass: https://eclass.srv.ualberta.ca/my/ (login and select course link)

Schedule
Lectures: Tue, Thu 1700–1825 (MEC 3-1)
Labs and Tutorials: Tue, Thu 1830–1955 (ETLE 2-005)

Course Objectives
– To develop a familiarity with the methodology of numerical flow analysis: model selection and approximation; pre-processing; solution; post-processing.
– To be able to assess, verify and identify errors in a numerical flow solution.
– To be able to make appropriate decisions that improve the quality and accuracy of a numerical solution.

Course Outline
1. Introduction
   a) Review of Fluid Dynamics
   b) Review of Numerical Methods
2. Discretization
   a) Differential Equations
   b) Domain (Grid Generation)
3. Physical Modelling (Turbulence)
4. Solution
   a) Solvers, Strategies
   b) Convergence Criteria
5. Verification & Validation, Best Practises

Mark Distribution
Lab Reports: 25% (6 Reports)
Midterm Exam: 25% (Thu., Feb. 16, 1700–1825, in class)
Final Exam: 50% (Tue., Apr. 10, 1700–1900, room TBD)
Final grades will be based on the distribution of the weighted averages.
**Exam Policy**

Missed midterm exams will have their marks transferred to the final exam. 
No calculators are permitted in the exams.

**Notes**

1. While cooperation between students is encouraged, all Lab Reports must be prepared **individually**.
2. Tutorial sessions are for hands-on practise of course theory and they do not have to be handed in.
3. Course hand-outs, marked reports and marks will be posted on the course eClass site.
4. “Recording is permitted only with the prior written consent of the professor.”
5. Policy about course outlines can be found in section 23.4(2) of the University Calendar.
6. “The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honest and to uphold policies at the University in this respect. Students are particularly urged familiarize themselves with the provisions of the Code of Student Behavior (online at [www.ulberta.ca/secretariat/appeals.htm](http://www.ulberta.ca/secretariat/appeals.htm)) and avoid any behavior which could potentially resulting suspicions of cheating, plagiarism, misrepresentation fax and/or participation in an offense. Academic dishonesty is a serious offense and can result in suspension or expulsion from the University.”

**Code of Student Behaviour (excerpt)**

30.3.2(1) Plagiarism
No Student shall submit the words, ideas, images or data of another person as the Student’s own in any academic writing, essay, thesis, project, assignment, presentation or poster in a course or program of study.

30.3.2(2) Cheating
30.3.2(2) a No Student shall in the course of an examination or other similar activity, obtain or attempt to obtain information from another Student or other unauthorized source, give or attempt to give information to another Student, or use, attempt to use or possess for the purposes of use any unauthorized material.
30.3.2(2) b No Student shall represent or attempt to represent him or herself as another or have or attempt to have himself or herself represented by another in the taking of an examination, preparation of a paper or other similar activity. See also misrepresentation in 30.3.6 (4).
30.3.2(2) c No Student shall represent another’s substantial editorial or compositional assistance on an assignment as the Student’s own work.
30.3.2(2) d No Student shall submit in any course or program of study, without the written approval of the course Instructor, all or a substantial portion of any academic writing, essay, thesis, research report, project, assignment, presentation or poster for which credit has previously been obtained by the Student or which has been or is being submitted by the Student in another course or program of study in the University or elsewhere.
30.3.2(2) e No Student shall submit in any course or program of study any academic writing, essay, thesis, report, project, assignment, presentation or poster containing a statement of fact known by the Student to be false or a reference to a source the Student knows to contain fabricated claims (unless acknowledged by the Student), or a fabricated reference to a source.