

AER210F VECTOR CALCULUS and FLUID MECHANICS

Course Outline, Fall 2015

(Information updated September 26 2015)

INSTRUCTORS:

Vector Calculus

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Fluid Mechanics

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LECTURE SCHEDULE:

Section 1

Monday	12-1	GB119
Tuesday	2-3	GB120
Friday	10-11	GB221

Section 2

Monday	11-12	GB119
Tuesday	1-2	GB120
Friday	9-10	GB221

TUTORIAL SCHEDULE:

Wednesday 5-6 (Sept. 16 start)

T1 - BA2139 (Ross Cruikshank), T2 - BA2195 (Ehsan Vaziri), T3 - BA2145 (Lu-Yin Wang),
T4 - SF2202 (Sandipan Chatterjee), T5 - BA1230 (Kwesi Apponsah), T6 - BA1220 (Marc-Andre Theberge)

LABORATORIES:

Lab Sections 1, 2

Wednesday 9-12am (Sept. 16 start)

Lab Sections 3, 4

Wednesday 2-5pm (Sept. 16 start)

DEMONSTRATIONS:

Section 1

Friday 3-4 BA1190 (Sept. 11 start)

Section 2

Friday 4-5 BA1190 (Sept. 11 start)

TEXTBOOKS:

Calculus Module: James Stewart, *Calculus*, 7th Edition, Brooks/Cole, 2012 (as used in MAT194F/MAT195S). (Editions 5-8 of the Stewart text would all be acceptable.)

Fluid Mechanics Text: Course notes (to be posted on course website)

TOPICS COVERED IN LECTURES:

Review of Multivariable Calculus: 2 lectures

Multiple Integrals: 8 lectures

Vector Calculus: 6 lectures

Hydrostatics: 6 lectures

Fluid Dynamics: 16 lectures

ACTIVITIES IN LABORATORIES AND DEMONSTRATIONS:

Each student will perform two experiments, requiring attendance in the laboratory period for two 3-hour sessions in the term. The date on which individual students are expected to attend the laboratory will be assigned early in the term. The demonstration lectures complement this laboratory and lecture experience; students observe and discuss other experiments, some of which will be performed by the instructor, while others will be on video. Students will be introduced to the technique of dimensional analysis for analysing data.

EVALUATION:

A: Term Mark: Quizzes: 1 hour each: 38 marks

Monday Oct. 5 - 9:00, EX100

Monday Oct. 26 - 8:45, HA403, GB412, SF3202

Monday Nov. 16 - 9:00, EX200

Monday Nov. 30 - 9:00, EX300, EX310, EX320

TOTAL FOR TERM WORK (A): 38 MARKS

B: Final Exam: Closed book: 50 marks,

FINAL EXAM (B): 50 MARKS

C: Reported Mark on Term and Exam:

CLASSROOM MARK ($C = A + B$): 88 MARKS

D: Laboratory Mark: One formal lab report (7 marks) plus one short lab report (5 marks)

LABORATORY MARK (D): 12 MARKS

E: Final Mark:

FINAL MARK ($E = C + D$): 100 MARKS