DAWSON
COLLEGE

Mathematics Department
Introduction to Applied Mathematics
201-912-DW Section 1
FALL 2011

Instructor:	Yann Lamontagne
Office:	7B.7
Office Hours:	Office hours are posted beside the door of office 7B.7 and on the website.
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Website:	`http://www.obeymath.org` The solutions to the quizzes and tests as well as additional examples are posted on the website. The material of previously taught courses is also available on the website.
Term Work:	*(60% of final grade, see Evaluation)*:

3 Class Tests* worth a total of 40% on:

Test 1	**Friday October 7th in room 4C.1**
Test 2	**Friday November 4th in room 4C.1**
Test 3	**Friday December 2nd in room 4C.1**

Other evaluation activities worth a total of 20%: **usually but not limited to an activity per week**

* Each class test is an hour and half in duration.

Important:

- There will be no make-up tests or quizzes. If a valid medical note is presented the weight of the quiz or test will be transferred to the weight of the final examination.
- Students who will be absent for any predictable reason on a quiz/test day must inform their teacher in writing within the first two weeks of the semester of their intent to be absent so that alternative arrangements can be made at the earliest opportunity. The written notice must be given even when the exact date is not known until later.
- Please note that I do **not** use Omnivox MIO, and messages sent to MIO are unfortunately ignored.

DAWSON COLLEGE
MATHEMATICS DEPARTMENT
COURSE OUTLINE

APPLIED MATHEMATICS FOR CIVIL TECHNOLOGY
201-912-DW
PONDERATION: 3-2-3

Prerequisites: Registration in Civil Engineering Technology;
High School Mathematics 536

Objectives: The purpose of this course is to upgrade students' mathematical abilities, for application to problems arising in Civil Engineering Technology. Particular emphasis will be placed on geometry, analytic geometry, and trigonometry. In addition, some high school algebra topics will be reviewed.

Text: **A.J. Washington**, Basic Technical Mathematics with Calculus, 9th ed
Rene de Graaf, Combat Mathematics: Technical Problems for Civil Engineering.

Calculator: A good scientific calculator is required in class, on class tests, and for the final exam. Only non-programmable calculators will be permitted on tests and the final examination.

Methodology: Explanatory presentations, followed by in class problem sessions, and supplemented by assignments.

Problem solving is an essential component of this course. You will be expected to solve word problems, and to present your solutions to these and all other problems in a logical and coherent fashion. Answers should be clearly stated, with appropriate units of measurement included. Marks may be deducted for work that is inadequate in these respects.

Evaluation: Grading will be based on:

Final exam	40%
Term work	60%

The final exam is a 3 hour comprehensive exam, held during the final exam period. A formula sheet will be provided for the final exam. Calculators with text storage should be cleared prior to the start of the exam. Term work is detailed in the teacher specific supplement, appended.

Learning Activities: Observation, group and individual problem solving practice.

Literacy & Standards of Performance:
The level at which each topic is treated is determined by the level of the civil engineering courses in which the students will have to apply the mathematics, and is reflected in the problem sets. The problem sets are the sole arbiter as to whether a topic is included in the course.

Policy on Cheating and Plagiarism

Cheating in Examinations, Tests, and Quizzes

Cheating includes any dishonest or deceptive practice relative to formal final examinations, in-class tests, or quizzes. Such cheating is discoverable during or after the exercise in the evaluation process by the instructor. Such cheating includes, but is not limited to

a. copying or attempting to copy another's work.
b. obtaining or attempting to obtain unauthorized assistance of any kind.
c. providing or attempting to provide unauthorized assistance of any kind.
d. using or possessing any unauthorized material or instruments which can be used as information storage and retrieval devices.
e. taking an examination, test, or quiz for someone else.
f. having someone take an examination, test, or quiz in one's place.

Unauthorized Communication

Unauthorized communication of any kind during an examination, test, or quiz is forbidden and subject to the same penalties as cheating.

Plagiarism on Assignments and the Comprehensive Assessment

Plagiarism is the presentation or submission by a student of another person's assignments or Comprehensive Assessment as his or her own. Students who permit their work to be copied are considered to be as guilty as the plagiarizer.

Obligation of the Teacher

Every instance of cheating or plagiarism leading to a resolution that impacts on a student's grade must be reported by the teacher, with explanation, in writing to the Chair of Mathematics and to the Dean of Pre-University Studies. A copy of this report must also be given to the student.

Penalties

Cheating and plagiarism are considered extremely serious academic offences. Action in response to an incident of cheating and plagiarism is within the authority of the teacher. Penalties may range from zero on a test, to failure of the course, to suspension or expulsion from the college.

Students' Obligations:

(a) Students have an obligation to remain informed about what takes place in their regularly scheduled classes. Absence from class does not excuse students from this responsibility.

(b) Students have an obligation to arrive on time and remain for the duration of scheduled classes and activities.

(c) Students have an obligation to write tests and final examinations at the times scheduled by the teacher or the College. Students have an obligation to inform themselves of, and respect, College examination procedures.

(d) Students have an obligation to show respectful behavior and appropriate classroom deportment. Should a student be disruptive and/or disrespectful, the teacher has the right to exclude the disruptive student from learning activities (classes) and may refer the case to the Director of Student Services under the Student Code of Conduct.

(e) Cellular phones, pagers and musical listening devices have the effect of disturbing the teacher and other students. All these devices should be turned off. Students who do not observe these rules will be asked to leave the classroom.

(f) Cell phones must also be put away. Text messaging is not allowed in class.

Religious Holidays:

Students who wish to observe religious holidays must inform each of their teachers in writing within the first two weeks of each semester of their intent to observe the holiday so that alternative arrangements convenient to both the student and the teacher can be made at the earliest opportunity. The written notice must be given even when the exact date of the holiday is not known until later. Students who make such arrangements will not be required to attend classes or take examinations on the designated days, nor be penalized for their absence.

It must be emphasized, however, that this College policy should not be interpreted to mean that a student can receive credit for work not performed. It is the student's responsibility to fulfill the requirements of the alternative arrangement.

Course Content:

1.	**Algebra Review (2 weeks)**		
	a.	Rules of Exponents	Ch. 11.1 & 11.2
	b.	Solving Equations & Formula (Rene De Graaf Combat Math Notes)	Ch. 1.10 & 1.11
	c.	Lines (Graph, Slope, Intercepts & Equations)	Ch. 21.2 & 21.3
	d.	Units & Conversions	Appendix B_1 & B_2 (Page A.2 – A.7)
2.	**Trigonometry (2 weeks)**		
	a.	Basic Trig/Right Triangles	Ch. 4.2, 4.3, 4.4
	b.	Trig. Functions/Radians/Angular Velocity	Ch. 8.2, 8.3, 8.4
	c.	Vectors, Law of Sines & Law of Cosines (9.1, 9.2, 9.5, 9.6 all lightly)	Ch. 9.1, 9.2, 9.3, 9.5, 9.6,
	d.	Graphs of Sines/Cosines & Harmonic Motions Equations Applied to Vibration Problems (10.1, 10.2 & 10.5 all lightly)	Ch. 10.1, 10.2, 10.3, 10.5
	e.	Trig. Identities & Equations (lightly)	Ch. 20.1, 20.2, 20.3, 10.5
3.	**Linear & Quadratic Equations (3 weeks)**		
	a.	Linear & Non Linear Systems 5.3 (lightly)	Ch. 5.3, 5.4, 5.5, 5.6, 5.7 & Ch. 14.2
	b.	Writing Equations from Statics Equilibrium Conditions	Notes
	c.	Quadratic Equations & Their Graph Writing Quadratic Equation Given Three Points on the Graph	Ch. 7.1, 7.3, 7.4 & 21.4 Notes
4.	**Geometry & Applied Problems**		
	a.	General Geometry	Ch. 2.1, 2.2, 2.3, 2.4
	b.	Rene De Graaf Combat Math Problems in Areas, Volume, Mass, Tangents, Intersections of Lines & Curves	Notes
	c.	Estimations of Cubic Yds/Meter of Concrete, Tons of Steel & Form Work	Notes
5.	**Logarithmic & Exponential Functions**		
	a.	Exponential & Log Functions	Ch. 13.1, 13.2, 13.3, 13.4, 13.5
	b.	Exponential & Log Equations	Ch. 13.6
	c.	Applied Problems in Curving of Concrete	
6.	**Statistics**		
	a.	Linear Regression	Ch. 22.6
	b.	Civil Engineering Applied Problems	Notes