DAWSON
COLLEGE

Mathematics Department
Calculus III
201-BZF-05 Section 01
Fall 2012

Instructor: James Requeima

Office: 7B.15

Office Hours: Office hours are posted beside the door of office 7B.15 and on the website www.obeymath.org

Telephone: (514) 931-8731 Ext. 1783

E-mail: jrequeima@dawsoncollege.qc.ca

Website: http://www.obeymath.org
The solutions to the quizzes and tests and any other class materials are posted on the website.

Teacher Accessability: For out of class communication please see me during my office hours.

Term Work: *(possibly worth 50% of final grade, see Grading Policy)*:

3 Class Tests	worth a total of 40%	on:
	Test 1	**Monday September 24th**
	Test 2	**Monday October 29th**
	Test 3	**Monday November 26th**
Quizzes	worth a total of 10%	on: **every Tuesday class except during the last week of class and test weeks**

The content of the quizzes is mostly taken from the assigned excercises of previous lectures.

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 other tests, quizzes and examinations.
- 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 so please do not contact me using MIO.
- This is an abridged course outline. The official course outline can be found at http://www.obeymath.org

DAWSON
COLLEGE

Mathematics Department

Calculus III – Science

201-BZF-05

COURSE OBJECTIVES

For details, see "Dawson Science Program".

COURSE COMPETENCIES

This course will allow the student to fully achieve the competency:

00UV: To apply the methods of multi-variate calculus to the study of functions and problem solving.

Elements of the competency:

1. To analyze the convergence of power series.
2. To calculate limits, derivatives & integrals of vector functions.
3. To apply the calculus of vector functions.
4. Make three-dimensional drawings.
5. To calculate limits and derivatives of functions of several variables.
6. To solve optimization problems.
7. To calculate double and triple integrals.
8. To apply double integrals.

00UU: To apply what they have learned to one or more subjects in the sciences.

Elements of the Competency:

1. To identify the scientific aspects of a given topic from an interdisciplinary perspective.

2. To transfer what they have learned to situations requiring the contribution of more than one discipline.

3. To apply systematically an experimental method.

4. To solve problems.

5. To use data processing technologies.

6. To reason with rigor.

7. To communicate clearly and precisely.

8. To show evidence of independent learning in the choice of documentation or laboratory instruments.

9. To work as members of a team.

10. To make connections between science, technology and the evolution of society.

11. To identify the underlying values underlying their treatment of a topic.

12. To place scientific concepts used in a historical context.

13. To show attitudes appropriate for scientific work.

PRE-REQUISITE

Good standing in Calculus 2 (Mathematics 201-NYB-05) or equivalent and in Linear Algebra (Mathematics 201-NYC-05) or equivalent.

PONDERATION

3-2-3

EVALUATION SCHEME AND SCHEDULE

The Institutional Student Evaluation Policy (ISEP) is designed to promote equitable and effective evaluation of student learning and is therefore a crucial policy to read and understand. The policy describes the rights and obligations of students, faculty, departments, programs, and the College administration with regard to evaluation in all your courses, including grade reviews and resolution of academic grievance. ISEP is available on the Dawson website.

Term Work

The term work is based on a minimum of 4 ½ hours of tests/quizzes. A minimum of 3 class tests will be given.

Final Examination

The Final Examination will be a supervised, comprehensive examination held during the formal examination period.

Grading Policy

A student's grade shall consist of the greater of:

(A) Term work for 50% and Final Exam for 50%.

OR

(B) Final Exam for 100%.

To qualify for (B) the student must have obtained at least 50% of the term marks.

To pass the course the students must obtain at least 60%.

REQUIRED TEXT AND MATERIALS

Text: The required text is Multivariable Calculus, by James Stewart, 7th Edition (ISBN-10: 0-495-01163-0)

References:
(1) Calculus of Several Variables, by Edwards & Penney
(2) Calculus of Several Variables, by R. Adams
(3) Advanced Calculus, Schaum's Outline Series

Calculators: A scientific calculator, which has no text storage or graphing capabilities, is allowed for class tests and the final exam.

TEACHING METHODS

Lectures and problem sessions.

ATTENDANCE AND COURSE PARTICIPATION REQUIREMENTS

Students should refer to the Institutional Student Evaluation Policy (ISEP section III-C) regarding attendance.

Attendance is recommended for the successful completion of the course.

LITERACY STANDARDS

Problem solving is an essential component of this course. Students will be expected to analyze problems stated in words, to present their solutions logically and coherently, and to display their answers in a form corresponding to the statement of the problem, including appropriate units of measurement. Marks will be deducted for work which is inadequate in these respects, even though the answers may be numerically correct.

STUDENT OBLIGATIONS

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

(b) 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.

(c) 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.

(d) Electronic/communication devices (including cell phones, mp3 players, etc.) have the effect of disturbing the teacher and other students. All these devices must be turned off and put away. Students who do not observe these rules will be asked to leave the classroom.

Everyone has the right to a safe and non-violent environment. Students are obliged to conduct themselves as stated in the Student Code of Conduct and in the ISEP section on the roles and responsibilities of students. (ISEP section II-D)

ACADEMIC INTEGRITY

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 Examination
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.

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 in the course, to suspension or expulsion from the college.

According to ISEP, the teacher is required to report to the Sector Dean all cases of cheating and plagiarism affecting a student's grade. (see ISEP section IV-C.)

INTENSIVE COURSE CONFLICTS & POLICY ON RELIGIOUS OBSERVANCE

If a student is attending an intensive course, the student must inform the teacher, within the first two weeks of class, of the specific dates of any anticipated absences.

Students who wish to observe religious holidays must also 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.

Students who intend to observe religious holidays or who take intensive courses must inform their teachers in writing as prescribed in the ISEP Policy on Religious Observance. (ISEP Section III-D).

A form for this purpose is available at the end of this document.

MATH TUTORIAL ROOM

Volunteer math teachers are available for help in room 7B.1 from 10:00 to 16:00 (Monday through Friday) and from 17:00-18:00 (Monday through Thursday).

COURSE CONTENT & TENTATIVE SCHEDULE

(number of classes listed is approximate)

Chapter 11 – Infinite Series (2 weeks)

- Review of Sequences and Series 11.1- 11.4,11.6, 11.7
- Alternating Series; (Approximation of sum)11.5:23-30
- Power Series-Approximation of integrals using series 11.9:25-32
- Taylor and MacLaurin Series: Approximation of integral 11.10:51-54

Chapter 13 – Vector Functions (three weeks)

- Vector Functions and Space Curves 13.1:1-20, 13.2:9-26,35-40
- Arc Length and Curvature 13.3:1-6,13,14,16,17-23,27-29,47-50
- Motion in Space: Velocity and Acceleration 13.4 (Omit Kepler's Laws):9-16,20,21,37-42

Chapter 14 – Partial Derivatives (four weeks)

- Functions of Several Variables 14.1:9-12,13-22
- Limits & Continuity 14.2:5-22,29-41
- Partial Derivatives 14.3:15-70,76-78,81
- Tangent Planes and Differential 14.4:1-6,11-18,25-32
- The Chain Rules 14.5:1-12,17-34,45-48
- Directional Derivatives and the Gradient Vector 14.6:4-17,21-26,41-46,51-53
- Maximum and Minimum Values 14.7:5-18,29-36
- Lagrange Multipliers (one constraint) 14.8:3-14,19-21,28

Chapter 12.6 – Quadric Surfaces (two periods)

Chapter 15– Multiple Integrals (5 weeks)

- Double Integrals over rectangles 15.1:3,11-13
- Iterated integrals 15.2:1-22,25-30
- Double integrals over general regions 15.3:1-32,43-54
- Double integrals in polar coordinates 15.4:7-27
- Applications of Double Integrals 15.5:3-10,15-19
- Surface area 15.6:1-12
- Triple Integrals 15.7:3-22,39-46
- Triple Integrals in Cylindrical coordinates 15.8:1-4,17-30
- Triple integrals in spherical polar coordinates 15.9:1-4,21-27,39-41

RELIGIOUS OBSERVANCE/ INTENSIVE COURSES FORM

Students who intend to observe religious holidays or who take intensive courses must inform their teachers in writing as prescribed in the ISEP Policy on Religious Observance. (ISEP Section III-D)

The following form must be submitted within the first two weeks of classes.

Name: _____

Student Number: _____

Course: _____

Teacher: _____

Date:	**Description:**
_____	_____
_____	_____
_____	_____
_____	_____