

**DAWSON COLLEGE
MATHEMATICS DEPARTMENT
STUDY GUIDE
201-NYB-05 (CALCULUS II) – REGULAR
PONDÉRATION 3-2-3**

- Prerequisite:** Calculus I (201-NYA/201-NYA-05) preferably the Science version.
- Objectives and Standards:** This course introduces the student to Integral Calculus, to the techniques of integration and to some of the applications of integration to physical problems. Another look at limits and an introduction to the topic of infinite series are included. Use of mathematical software will be explored. For more details, see pages 44 to 49 of the Dawson Science Program.
- Text:** **Single Variable Essential Calculus – Early Transcendentals by James Stewart**
- Reference Books:** Calculus of a Single Variable – (8th edition), by Larson, Hostetler and Edwards
Calculus Single Variable – 5th edition by James Stewart
Calculus by Edwards & Penny,
Or any standard text book on Calculus of a Single Variable.
- Methodology:** Most sections use lectures and problem sessions. Some sections may use web-based assignments.
- Termwork:** The term grade is based on a minimum of 4½ hours of tests/quizzes.
- Final Examination:** The Final Examination will be a supervised, comprehensive examination held during the formal examination period. There are no exemptions.
- Grading Policy:** The grade shall consist of the greater of:
(A) Termwork 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 mark and must have written more than 50% of the class tests.
- Calculators:** A calculator without text storage or graphing capabilities is allowed for class test and final exam.
- Literacy Policy:** “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.”
- Formula Sheets:** No formula sheet will be permitted for quizzes, class tests and the final exam.
- Standard of Performance:** In order to pass this course the student must obtain a final grade of at least 60%.
- Department Website:** For final examinations from previous years and other useful information consult the departmental website. Go to www.dawsoncollege.qc.ca → go to Departments → go to Mathematics → go to Departmental Website → go to Help For Students.

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.

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.

<u>Specific Competencies</u>	<u>Learning Activities</u>	<u>Chapters, Sections & Problems in Text</u>
Antiderivatives Reimann Sums – The Fundamental Theorem of Calculus	Find the area under a simple curve using Riemann sums. Define the Definite Integral as the limit of a Riemann sum. Prove the Fundamental theorem of Calculus, Substitution Method, and Average Value.	4.7 p246, 1-30; 33-41 Review p250, 49-56 5.1 p260, 1, 3, 5; 11-14 5.2 p272, 1, 3, 5; 11-26; 29-42 5.3 p282, 1-30; 41-46 5.4 p291, 1-20 5.5 p299, 1-54, 61, 62 Review p302, 7-29; 31-32; 35-38, 42, 46
Techniques of Integration	Integrate certain functions using the following techniques: - Integration by Parts - Trigonometric Integral using Identities - Trigonometric Substitutions - Partial Fractions (linear, repeated linear and quadratic factors only)	6.1 p309, 1-31 6.2 p319, 1-62 6.3 p327, 1-34; 35-42 Review p355, 1-40
Numerical Integration	Approximate certain integrals using Simpson’s Rule	6.5 p343, 7-16 Review p356, 57, 58
Indeterminate Forms and L’Hopital’s Rule	Evaluate Limits of Indeterminate Forms using L’Hopital’s Rule	3.7 p193, 1-36 Review p197, 67-82
Improper Integrals	Determine the Convergence of Improper Integrals	6.6 p352, 1-2; 5-32 Review p355, 41-50
Applications of Integration	Extend the notion of the Definite Integral to calculate: - the area bounded between two curves - the volume of a solid of revolution using both the disk and shell methods - arc length (to follow Techniques of Integration)	7.1 p361, 1-16; 21, 29, 31-33; 35 7.2 p370, 1-16; 21, 22, 25 7.3 p376, 1-26, 33-39, 41 7.4 p383, 1-10; 12-14 7.5 p394, 1-3, 6-8, 17, 18 Review p408, 1-14, 25, 26, 31, 37
Infinite Sequence	Examine the convergence or divergence of Infinite Sequences	8.1 p419, 1-23; 26, 27
Infinite Series	Determine the sum of an infinite series from the definition. Determine the convergence of a geometric series; applications Tests for convergence of series of positive terms; Integral, Comparison, Limit Comparison and Ratio tests.	8.2 p427, 1-26, 31, 32 8.3 p436, 3, 4, 6-26, 27 8.4 p446, 19-31, 36, 37, 39 Review p480, 1-18, 25-29
MacLaurin and Taylor’s Polynomials	MacLaurin and Taylor’s Polynomials and approximations	8.8 p477, 3-8, 9-13 (Part a only) Review p480, 43-50 (MacLaurin Polynomial only)