

THE UNIVERSITY OF WESTERN ONTARIO
DEPARTMENT OF MATHEMATICS

Mathematics 1225B
Methods of Calculus

January - April 2017

NOTE: Many science/technically oriented courses and programs, at Western and at other universities, require a full-year calculus course (such as Calculus 1000A and 1501B). Mathematics 1225B may not be appropriate and will not serve as a prerequisite for Calculus 1301B or 1501B.

INSTRUCTORS: (*Course Coordinator: V. Olds*)

001 - C. Okay; 002 - V. Olds; 003 - H. Seyedinejad; 530 (Brescia) - C. Florence; 550 & 551(Huron) - A. Fathi; 570 & 571 (King's) - D. Meredith; 572 (King's) - T. Moschandreou; 573 (King's) - J. Turnbull

TEXTBOOK: (required)

Math 1225A/B Methods of Calculus (Excerpts from Tan et al) Custom Edition, published by Nelson.

Custom package with text and Student Solution Manual ISBN: 0176705538 or *text* ISBN: 0176588906 and *Student Solutions Manual* ISBN: 0176588914 if purchased separately. (This is the *Revised Edition*, which has many typos corrected. Used copies of ISBN: 0176637680 (text) and ISBN: 0176649697 (solutions) may be used, but a student using these needs to be sure to consult the errata list on the course web site for the typos.)

PREREQUISITES:

Ontario Secondary School MCV4U or equivalent (High School Calculus), or Mathematics 0110A/B.

ANTIREQUISITES:

Applied Mathematics 1201A/B, 1413, Calculus 1301A/B, 1501A/B. **If Calc 1000A/B or 1500A/B was completed after Sept. 1 2016 it is an antirequisite** (but not if it was completed before that time).

COURSE OUTLINE:

Logarithmic, exponential and trigonometric functions; integration, applications of integration (area, volume); techniques of integration, improper integrals; functions of several variables, Second Partial Test, Lagrange Multipliers; differential equations.

COURSE WEB SITE:

Various supplemental materials, such as practice tests and solutions to some of the homework exercises, are posted on the OWL web site. In addition, there are forums on which students may post questions. Important information will be posted on the NEWS forum and/or on the class page on the web site. All students are expected to be aware of information, and make use of materials, posted on the course web site. As well, some class sections use the online quizzes on the web site as the class work component of the grade.

WHAT IS EXPECTED OF THE STUDENT?

Attend all classes, make a serious effort to understand all course material, and do all assigned homework. Be aware of all information posted on the NEWS forum in OWL. The student must assume responsibility for any missed classes. It is up to the student to seek out help when needed.

Please contact the course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x82147 for any specific question regarding an accommodation.

Learning Objectives

Students who have already taken an introductory calculus course will continue to study derivatives and trigonometric functions are included. Students will also find antiderivatives and apply this concept to solving problems involving areas and volumes. By the end of this course, students will study functions of several variables and also solve differential equations.

EVALUATION OF STUDENT PERFORMANCE:

Students will be assessed on the basis of "Class Work", 2 Term Tests, and a Final Exam. The means of assessing the Class Work component will be determined by the instructor of each section, and may be for participation, quizzes, assignments, etc. For each class, information about how the Class Work component will be assessed, and details of the timing, will be announced in class and also posted on the appropriate "class page" on the OWL web site. (Some sections will use Online Quizzes in OWL.)

The 2 Term Tests, each 90 minutes in length, will be held on:

Friday February 10 2017, 7:00 - 8:30 p.m. and **Friday March 17 2017**, 7:00 - 8:30 p.m.

Locations of these tests will be announced in class and/or on the course web site.

The Final Exam will be 3 hours in length, covering all of the course material. This exam will be scheduled by the Registrar's Office during the April Exam Period.

Calculation of Final Grade:

Each Term Test will count for 20%, the Final Exam will count for 40% and the Class Work component will count for 10%. The remaining 10% weight will be assigned to whichever of the 3 tests/exams is the student's best mark.

Notes:

1. The Tests and Examination will all have some multiple choice questions and some written answer questions.
2. **NO calculators or other electronic devices or any other aids are allowed on tests and exams.**
3. See Absence / Missed Work policy on next page.

CLASS SCHEDULE:

Section	Campus	Instructor	Days & Times	Location
001	Main	C. Okay	MWF 9:30	AHB 1R40
002	Main	V. Olds	MWF 12:30	MC 110
003	Main	H. Seyedinejad	Tu 7:00 - 9:00 Th 7:00 - 8:00	UCC 146 UCC 146
530	Brescia UC	C. Florence	MTuW 9:30	BR - 203
550	Huron UC	A. Fathi	MWF 1:30	HC - V 214
551	Huron UC	A. Fathi	MWF 8:30	HC - V 214
570	King's UC	D. Meredith	Tu 1:30 - 2:30 Th 1:30 - 3:30	KC - SA 150 KC - W 166
571	King's UC	D. Meredith	Tu 9:30 - 10:30 Th 9:30 - 11:30	KC - W 168 KC - W 168
572	King's UC	T. Moschandreou	MW 7:00 - 8:30	KC - W 168
573	King's UC	J. Turnbull	M 3:30 - 5:30 W 2:30 - 3:30	KC - SA 151 KC - LH 100

INSTRUCTOR CONTACT INFORMATION:

V. Olds (002 & Course Coordinator): volds@uwo.ca, MC 103G, X86520

C. Okay (001): cokay@uwo.ca, MC 134, X86540

H. Seyedinejad (003): sseyedin@uwo.ca, MC 129, X86528

C. Florence (530): cflorenc@uwo.ca, BUC - MSJ 301E, 519 432-8353

A. Fathi (550 & 551): afathiba@uwo.ca, HUC - OR 152

D. Meredith (570 & 571): meredith@uwo.ca, KUC - DL 120, KUC X4322

T. Moschandreou (572): tmoschan@uwo.ca, KUC - SA 231

J. Turnbull (573): jturnbu7@uwo.ca, KUC - W 233

Note: Any email sent to an instructor (and especially to the course coordinator) **MUST** say Math 1225B in the subject line. Any email without this, and/or any email sent from other than a UWO email address, may be deleted unread.

SENATE POLICY ON PREREQUISITES:

Prerequisite checking is the **student's responsibility**. Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

STATEMENT ON ACADEMIC OFFENCES:

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

ABSENCE / MISSED WORK:

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation *to your Dean's Office as soon as possible* and contact *your instructor immediately*. It is the student's responsibility to make alternative arrangements with his or her instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For further information concerning UWO's Policy on Accommodation for Medical Illness please refer to this policy at: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here: https://studentservices.uwo.ca/secure/medical_document.pdf

A makeup will be held for each term test as well as for the final exam. Only students with prior permission from their instructor will be allowed to write the makeup for a test. Only students with a Recommendation for Special Exam from their Dean's Office will be allowed to write a makeup for the Final Exam. Any student who misses a portion of the Class Work component of the grade for any legitimate reason should contact your instructor as soon as possible. Supporting documentation may be required. In the case of missed Class Work, or if a student is unable to write the scheduled makeup for a Term Test due to a documented prolonged or recurring absence or other legitimate conflict, your instructor will decide whether to accommodate by rescheduling or by reweighting that component of the grade.

SUPPORT SERVICES

Office of the Registrar

UWO	www.registrar.uwo.ca
Brescia	www.brescia.uwo.ca/academics/registrar-services
Huron	www.huron.uwo.ca/CurrentStudents/StudentLifeandSupportServices/AcademicResources
King's	www.kings.uwo.ca/academics/academic-deans-office/

Student Development Services www.sdc.uwo.ca

Learning Skills Services <http://sdc.uwo.ca/learning/>

USC <http://westernusc.ca/services/>

Academic Calendar www.westerncalendar.uwo.ca

ITS www.uwo.ca/its/helpdesk

Students who are in emotional/mental distress should refer to Mental Health @ Western via the link given below for a complete list of the options about how to obtain help: <http://www.uwo.ca/uwocom/mentalhealth/>

Mathematics 1225B - Suggested Exercises - Winter 2017

Section	Page	Problems
§5.1 †	9	odd 1 - 31, all 43 - 46.
§5.2 †	17	all 1 - 20, odd 21 - 35, odd 41 - 59, 68, 69, all 77 - 80.
§5.3 †	25	odd 1 - 27, all 28 - 40, odd 41 - 47, 48, 49, 71, 73.
§5.4 †	35	odd 1 - 31, all 32 - 44, odd 45 - 55, all 58 - 63.
§6.2	67	all 1 - 8, all 10 - 14, all 27 - 30.
§6.4	75	all 1 - 34, 43, 44, 46, 49, 50.
§8.1	94	odd 1 - 55, odd 59 - 67, odd 71 - 75, 79.
§8.2	111	odd 1 - 41, odd 45 - 73.
§8.4	132	odd 21 - 51.
§8.5	143	odd 1 - 27, 30, 31, 32, 34, 37, 38, odd 39 - 49, all 64 - 69, 71, 74.
§5.1 ‡	156	2, 4, 5, 9, 11, all 13 - 23, 25, all 28 - 31, all 33 - 35, 41, 43, 45, 46.
§5.2 ‡	170	all 1 - 10, all 13 - 17, all 19 - 22, all 28 - 31. (<i>Hint for #5: use $\tan^2 y = \sec^2 y - 1$</i>)
§9.1	180	odd 1 - 33, 37, 39 all 43 - 50, 53, 55, 56, 57.
§9.2	190	odd 1 - 13, all 14 - 23, odd 25 - 29.
§9.5	201	odd 1 - 9, odd 13 - 29, odd 33 - 41.
§10.1	213	odd 1 - 13, 29.
§10.2	226	odd 1 - 25, odd 29 - 59.
§10.3	237	odd 1 - 19, 27, all 29 - 31, 33.
§10.5	249	1, 3, 5, 7, 11, 12, 13, 15, 17, 18, 23, 25.
§7.1	267	all 1 - 5, all 9 - 11, 14, 16, 17, 20, 22, 23, 25, 26.
and applications	267	27, all 34 - 36, 39, all 42 - 45.
§5.5 †	44	1, 2, 11, 15
§7.4	282	all 1 - 11, 13, 15, all 17 - 22.
and applications	282	all 27 - 29.

Notes:

- Page numbers and text section references refer to the custom published text (larger number shown at the **centre bottom** of each page).
- Because the source material for this text comes from two different books, the custom text contains **two Chapter 5's**. In the table of contents, the two source texts are indicated by superscripts of † and ‡. In the above, the same symbols are used to differentiate between the two Chapter 5's. Section numbers followed by † refer to **the first Chapter 5** in the text, while section numbers followed by ‡ refer to **the second Chapter 5**.
- Except for §5.5 †, which is covered with Chapter 7 at the end of the course, all sections covered are in the same order as they appear in the custom published text. However, in Ch. 7, some classes may cover the applications parts of the Ch. 7 material *after* covering the methodology for both sections. So for some, the "and applications" and 5.5 † homework may come after the first line of 7.4 homework above.
- Any changes to this list will be announced on the NEWS and/or Homework discussion boards.
- Answers and solutions for assigned even-numbered problems are posted on the course web site. Detailed solutions to some other problems are also posted.

2016-17 BRESCIA UNIVERSITY COLLEGE ACADEMIC POLICIES AND REGULATIONS

1. POLICY REGARDING MAKEUP EXAMS AND EXTENSIONS OF DEADLINES

When a student requests academic accommodation (e.g., extension of a deadline, a makeup exam) for work representing 10% or more of the student's overall grade in the course, it is the responsibility of the student to provide acceptable documentation to support a medical or compassionate claim. All such requests for academic accommodation **must** be made through an Academic Advisor and include supporting documentation. Academic accommodation for illness will be granted only if the documentation indicates that the onset, duration and severity of the illness are such that the student could not reasonably be expected to complete her academic responsibilities. Minor ailments typically treated by over-the-counter medications will not normally be accommodated. Documentation shall be submitted as soon as possible to the student's Academic Advisor indicating the period of illness and when the student should be able to resume academic responsibilities. Students must submit their documentation along with a request for relief specifying the nature of the accommodation being requested no later than two business days after the date specified for resuming responsibilities. Appropriate academic accommodation will be determined by the Dean's Office in consultation with the student's instructor(s). Please note that personal commitments (e.g., vacation flight bookings, work schedule) which conflict with a scheduled test, exam or course requirement are **not** grounds for academic accommodation.

A UWO Student Medical Certificate (SMC) is **required** if a student is seeking academic accommodation on medical grounds. This documentation should be obtained at the time of the initial consultation with the physician/nurse practitioner or walk-in clinic. A SMC can be downloaded from: <http://www.westerncalendar.uwo.ca/2016/pg117.html> The student must request documentation sufficient to demonstrate that her ability to meet academic responsibilities was seriously affected. Please note that under University Senate regulations documentation stating simply that the student "was seen for a medical reason" or "was ill" is **not** adequate to support a request for academic accommodation.

Whenever possible, requests for academic accommodation should be initiated in advance of due dates, examination dates, etc. Students must follow up with their professors and Academic Advisor in a timely manner.

The full policy on requesting accommodation due to illness can be viewed at: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf

2. ACADEMIC CONCERNS

If you feel that you have a medical or personal problem that is interfering with your work, contact your instructor and Academic Advisor as soon as possible. Problems may then be documented and possible arrangements to assist you can be discussed at the time of occurrence rather than on a retroactive basis. Retroactive requests for academic accommodation on medical or compassionate grounds may not be considered.

If you think that you are too far behind to catch up or that your work load is not manageable, you should consult an Academic Advisor. If you consider reducing your workload by dropping one or more courses, this must be done by the appropriate deadlines (refer to the Registrar's website, www.registrar.uwo.ca, for official dates). You should consult with the course instructor and the Academic Advisor who can help you consider alternatives to dropping one or more courses. *Note that dropping a course may affect OSAP eligibility and/or Entrance Scholarship eligibility.*

The Dean may refuse permission to write the final examination in a course if the student has failed to maintain satisfactory academic standing throughout the year or for too frequent absence from the class or laboratory (<http://www.westerncalendar.uwo.ca/2016/pg130.html>)

3. ABSENCES

Short Absences: If you miss a class due to a minor illness or other problems, check your course outline for information regarding attendance requirements and make sure you are not missing a test or assignment. Cover any readings and arrange to borrow notes from a classmate. Contact the course instructor if you have any questions.

Extended Absences: If you have an extended absence, you should contact the course instructor and an Academic Advisor. Your course instructor and Academic Advisor can discuss ways for you to catch up on missed work and arrange academic accommodations, if appropriate.

4. POLICY ON CHEATING & ACADEMIC MISCONDUCT

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: <http://www.westerncalendar.uwo.ca/2016/pg113.html>

Students are responsible for understanding the nature of and avoiding the occurrence of plagiarism and other academic offences. Students are urged to read the section on Scholastic Offences in the Academic Calendar. Note that such offences include plagiarism, cheating on an examination, submitting false or fraudulent assignments or credentials, impersonating a candidate, or submitting for credit in any course without the knowledge and approval of the instructor to whom it is submitted, any academic work for which credit has previously been obtained or is being sought in another course in the University or elsewhere. Students are advised to consult the section on Academic Misconduct in the Western Academic Calendar.

If you are in doubt about whether what you are doing is inappropriate or not, consult your instructor, the Student Services Centre, or the Registrar. A claim that "you didn't know it was wrong" is not accepted as an excuse.

The penalties for a student guilty of a scholastic offence (including plagiarism) include refusal of a passing grade in the assignment, refusal of a passing grade in the course, suspension from the University, and expulsion from the University.

Plagiarism:

Students must write their essays and assignments in their own words. Whenever students take an idea or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com.

Computer-marked Tests/exams:

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating. Software currently in use to score computer-marked multiple-choice tests and exams performs a similarity review as part of standard exam analysis.

5. PROCEDURES FOR APPEALING ACADEMIC EVALUATIONS

All appeals of a grade must be directed first to the course instructor. If the student is not satisfied with the decision of the course instructor, a written appeal signed by the student must be sent to the Department Chair. If the response of the department is considered unsatisfactory to the student, she may then submit a signed, written appeal to the Office of the Dean. Only after receiving a final decision from the Dean may a student appeal to the Senate Review Board Academic. A Guide to Appeals is available from the Ombudsperson's Office, or you can consult an Academic Advisor. Students are advised to consult the section on Student Academic Appeals under Academic Rights and Responsibilities in the Western Academic Calendar (<http://www.westerncalendar.uwo.ca/2016/pg112.html>)

6. PREREQUISITES AND ANTIREQUISITES

Unless you have either the prerequisites for a course or written special permission from your Dean to enroll in it, you will be removed from the course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisite(s).

Similarly, you will also be deleted from a class list if you have previously taken an antirequisite course unless this has the approval of the Dean. These decisions may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course because you have taken an antirequisite course.

7. SUPPORT SERVICES

The Brescia University College Registrar's website, with a link to Academic Advisors, is at <http://brescia.uwo.ca/academics/registrar-services/> . The website for the Student Development Centre at Western is at <http://www.sdc.uwo.ca/> . Students who are in emotional/mental distress should refer to Mental Health @ Western http://uwo.ca/health/mental_wellbeing/ for information including a complete list of options about how to obtain help.

Portions of this document were taken from the Academic Calendar, the Handbook of Academic and Scholarship Policy and the Academic Handbook of Senate Regulations. This document is a summary of relevant regulations and does not supersede the academic policies and regulations of the Senate of the University of Western Ontario.