

Duke University
Mathematics 026L-Laboratory Calculus and Functions II

Section: 04
Lecture: MWF 8:00-8:50 in West Duke, room 108B.
Laboratory: Th 14:40-16:25 in West Duke, room 101.

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Course Home Page: <http://www.math.duke.edu/~kozdron/Instruction/26LSpring02/>
Office Hours: By Appointment
Help Room Hours: Th 18:00-20:00

Required Texts:

- Calculus: Single Variable, Third Edition
Deborah Hughes-Hallett, Andrew Gleason, William McCallum et al.
- 25L-26L Coursepack, 2001-2002 Edition
Edited by Michael Kozdron and Jim Tomberg

Optional Texts:

The following books are on closed reserve in Lilly Library. They are shelved behind the circulation desk so you need to request them from the library staff at the desk.

- Functions Modeling Change: A Preparation for Calculus
Eric Connally, Deborah Hughes-Hallett, Andrew Gleason
- Technical Writing: Structure, Standards, and Style
Robert Bly, Gary Blake, 808.0666 B661 T255 1982

Course Description:

A continuation of Mathematics 25L. Topics include zeros of functions, antidifferentiation, initial value problems, differential equations, Euler's method, slope fields, review of trigonometry, modeling with trigonometric functions, Riemann sums, the Fundamental Theorem of Calculus, integration by substitution, integration by parts, separation of variables, systems of differential equations. Students who complete this course can enroll in Mathematics 32L. Not open to students who have credit for Mathematics 31 or 31L.

Prerequisites:

Mathematics 25L. It is expected that students are fluent with the precalculus material covered in Mathematics 25L and that they are proficient with the derivatives of elementary functions.

General Policies

The policies listed on this page supplement the general Math 26L policies as detailed on pages 1 – 12 of the Introduction section of the Coursepack. It is expected that all students have carefully read that section.

Grading Information:

Your final grade will be determined by your performance in the course, including both lecture and lab. I will use the following evaluation methods in approximately the indicated percentages to arrive at your final grade. Some modifications will be necessary; for example, I must abide by the Mathematics Department policy as outlined in the Final Exam section.

Evaluation Type	Number	Value Each	Percentage of Final Grade
Homework			
Daily Problem Sets	35	0 points	0%
Assignments	10	20 points	10%
Laboratory Quizzes	10	20 points	15%
Laboratory Write-Ups	10	20 points	15%
Gateway	1	0 points	0%
Office Visits	2	0 points	0%
Term Tests			
Tests (Lab)	3	100 points	30%
Tests (Lecture)	1	50 points	5%
Final Exam	1	200 points	25%

Daily Problem Sets:

There will be daily problem sets assigned which will consist solely of questions from the textbook and the Coursepack. There are answers to most of the odd numbered problems in the back of the textbook, and there is a complete solutions manual in the Help Room (see below). Consequently, students are expected to work through all the daily problem sets although they will not be collected or graded. The lab quizzes, however, will include a selection of these daily problems taken verbatim. It is of the utmost importance that you make a concerted effort to understand all the daily problems. The real learning takes place on the daily problem sets. I recommend that you work the problems in small groups; as long as everyone is contributing, this is one of the most effective ways to learn math. I will not go over daily homework problems in class, but instead will encourage you to seek help outside of lecture time. The Help Room is open forty hours each week, and I am always willing to help you by appointment. Please don't hesitate to contact me if you need a hand.

Assignments:

Longer assignments will be given throughout the course. Assignments must be stapled and handed in at the beginning of class on the day that they are due. No late assignments will be accepted. These assignments are designed to extend the material taught in class and will require, for the most part, more than rote application of formulae. They will be indicative of the questions asked on the term tests and the final exam.

Laboratory Quizzes:

There will be a short 20 minute, 20 point quiz held at the beginning of each lab period except for those during which a term test is held. These quizzes will consist of problems taken verbatim from the daily problem sets and material from the previous lab (if there was one). Please consult the separate Lab Schedule for the specific problem sets and labs that will be covered on each quiz.

Laboratory Write-Ups:

Since one of the major goals of this course is to develop students' ability to write mathematics, there will be a write-up assigned for each lab. The rationale behind such writing assignments is that it is often not sufficient to simply solve a problem; that solution must be communicated to others. The write-ups will generally require either solutions to the problems posed in lab or a summary of the material covered. Depending on the lab, write-ups will either be due at the end of the period or the following week.

Gateway:

There will be a Gateway Test in this course which you must pass in order to receive a final grade for the course. The Gateway will test your basic differentiation skills and you must answer 7 of 8 questions perfectly in order to pass. Failure to complete the Gateway by Friday, April 26, 2002, will result in a final grade of “incomplete.” The first Gateway will be given to the entire class in lab on Thursday, February 7, 2002. However, if you fail the first Gateway, it is your responsibility to ensure that you take, and pass, a subsequent test. No subsequent Gateways will be administered during class time, nor will multiple Gateways be given on the same day. For more information, please see page 9 in the Coursepack. There are five practice gateways in the Coursepack and two are available on the course website.

Office Visits:

Each student is required to schedule an appointment with me once before Spring Break and once after Spring Break to discuss the course and your progress.

Term Tests:

There will be four tests; the first three held in lab and the fourth held in lecture. All tests will be closed-book, will include both conceptual and computational questions, and will cover the material from the reading, the problem sets, the assignments, and the labs. However, the tests will be designed to test your knowledge, and not to check your ability to regurgitate formulae. Few, if any, test questions will actually be one line applications of formulae. There may also be problems similar to those done on the problem sets, but there is no value in having students solve problems they have done before. Therefore, most test problems will require you to put together what you know in new and different ways; this is the only way to effectively evaluate your understanding of the material. Please carefully read the Expectations on pages 7 – 8 of the Coursepack.

Final Exam:

All students in Math 26L write a common final exam which is written in committee by all the instructors for this course. Students are permitted to bring one handwritten $8\frac{1}{2} \times 11$, two-sided “cheat sheet” to the exam. The Supervisor of First-Year Instruction determines a grading scale for the final exam after they have all been marked. Instructors are required to have a final grade distribution which is *approximately* the distribution of the final exam scores in his or her section. Furthermore, no student may be given a final grade which is more than one letter grade above or below that student’s term grade before the exam. There is also a “mandatory F” score set for the final exam. Any student who scores below this (rather low) mandatory F must receive a final grade of F.

Exam Dates:

The first three term tests will be written in lab and the fourth will be written in lecture, while the location of the final exam will be determined by the Registrar near the end of the term.

- Test #1: **Thursday, January 31, 2002**
- Test #2: **Thursday, February 28, 2002**
- Test #3: **Thursday, April 4, 2002**
- Test #4: **Monday, April 22, 2002**
- Final Exam: **Tuesday, April 30, 2002, 19:00-22:00**

Policy for Missed Tests:

There will be no make-up tests in this course. Any absence from a test is inexcusable and will result in a grade of 0 unless the student has made prior arrangements to miss the test. To miss a test, a Dean's excuse and the consent of the instructor are required in advance of the scheduled test date. Since the test dates for the term have already been set, it is your responsibility to plan your schedule for the semester accordingly. If you are sick and miss a test, then you must still produce a Dean's excuse. Note, however, that you may have difficulty obtaining a Dean's excuse if you do not go to the infirmary.

Policy for Missed Final Exam:

Students should familiarize themselves with the section on Final Examinations and Excused Absences on page 53 of the *Duke University Bulletin of Undergraduate Instruction*. As noted in the *Handbook for Parents*:

The final examination schedule for a given semester is published at the time of registration for that semester. Absences from exams are not excused except under circumstances of incapacitating illness. Therefore, students and parents are urged not to make arrangements for travel home until after the completion of the student's last examination.

Web Site:

I have written a web site for this course. The URL is

<http://www.math.duke.edu/~kozdrn/Instruction/26LSpring02/>.

I will be updating this site throughout the term and you will be able to download any handouts that you don't get in class. I've included information about the lab, the textbooks, and calculus in general. There is also a web page maintained by the Supervisor of First-Year Instruction which contains information useful for all students taking first-year mathematics courses. That URL is

http://www.math.duke.edu/first_year/.

Email:

Email will be the predominant form of course related communication between both students and the instructor. Therefore, please check your email regularly for course updates and homework/test information. Feel free to email your questions to me. I will endeavour to respond within 24 hours. Should you not receive a reply within 24 hours, try sending the message again, or ask me in person if I received your mail.

Extra Help:

The Mathematics Department operates a Help Room where students can get assistance on a drop-in basis. It is staffed by calculus teachers, lab instructors, and assistants. The Help Room is located in **Room 132 of the Carr Building on East Campus**. The hours of operation and tutor schedule are available from the first-year calculus web site. If you need extra help, please stop by the Help Room. I will be available there Thursdays from 18:00-20:00. As well, you are welcome to schedule a time to meet with me in my office. I am usually around my office in the afternoon, but it is still best to email me first.

Duke Honor Code:

It is expected that all students abide by the Duke University Undergraduate Honor Code and are familiar with the importance of academic integrity and the definition of plagiarism as detailed in the *Duke University Information and Regulations for Trinity College of Arts and Sciences and the School of Engineering* on pages 9 – 11.