Calculus - MTH 31, Sec. D03

Professor: Dr. Luis Fernández
Class times and room: Mo, We, Th, 2:00-3:50pm, ME332.
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Overview of the course.

This course will provide some basic tools that you will need in your studies in maths and sciences. **It is important that you master these tools as you will need them in your next courses.**

Some resources for learning:

- **Classes:** Attendance is mandatory, and essential to succeed in the class. In class you will have time to learn new material, practice, and ask questions.
- **Internet:** There are a lot of excellent materials for learning online. If you have not understood something in class, do a web search of the topic and you will probably find excellent explanations. I encourage you to use this resource.
- **Free tutoring:** In room CPH 303 there are permanent tutors for all Math courses. Opens 10am to 8pm Monday to Friday, 10am to 3pm weekends. You can also get online tutoring—check Brightspace.
- **Meetings with the instructor:** If you need help with any part of the course, or for any other matters, please come to my office during office hours (above) or write me an email to set up an appointment.
- **Emailing the instructor:** If you have questions while doing homework and need help quickly, please email me anytime (address above).

Textbook

- *Calculus, Early Transcendentals, 9th edition* by James Stewart. NOTE: some chapters are available in e-reserves from the library. Also, a used 8th edition of the same book, which is almost identical, is much cheaper.
- A **scientific calculator** is also required. CELLPHONES ARE NOT ALLOWED AS CALCULATORS.

Student's responsibilities

- Obtain all the material necessary for the class (textbook and calculator) in the first week.
- Study the material, using any resource to achieve the goal: to learn.
- Attend, be on time, be involved, and have an active participation in every class.
- Do and submit all the homework assignments in time.
- Treat peers and instructor in a respectful manner.

Instructor's obligations and responsibilities

- Act as *facilitator* of the learning process of the students, and assist with any question that students may have.
- Give tests and exams of appropriate difficulty. Grade tests and exams promptly and explain the students the meaning of their grades.
- Treat the students respectfully and impartially.

Classroom Rules

- **Students with 6 absences or more will automatically receive an F (Fail) in the course**.
- Cell phones and earphones are not allowed during class time or tests unless required by the instructor.
- There will be a break in the middle of each class. Students will be allowed to use cell phones during breaks.
- **In-class tests will not be repeated**. The only **exception** is if the instructor receives **notice** of the absence (via e-mail, telephone, message, a friend, ...) **on the day of the test or before**.

Exams and homework:

- There will be **three in-class tests** during the term, **each worth 20%** of the final grade, but I will only use the two highest grades, totalling **40%** of the final grade.
- **Homework:** You will have homework of **two types**:
  → Written homework, to hand in.
  → Online homework, via WeBWoRK.
  Homework will count a **20%** of the final grade.
- The **final exam** will count **40%** of the final grade.
  In addition, **at least 50% in the final exam will be required to pass the class**.

Academic Integrity:

Academic dishonesty (such as plagiarism and cheating) is prohibited at Bronx Community College and is punishable by penalties, including failing grades, dismissal and expulsion. For additional information and the full policy on Academic Integrity, please consult the BCC College Catalog.

Accommodations/Disabilities:

Bronx Community College respects and welcomes students of all backgrounds and abilities. In the event you encounter any barrier(s) to full participation in this course due to the impact of a disability, please contact the disAbility Services Office as soon as possible this semester. The disAbility Services specialists will meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations for this course. You can reach the disAbility Services Office at: disability.services@bcc.cuny.edu, Loew Hall, Room 211, (718) 289-5874.

Class plan and assigned exercises. MTH 31. Professor Luis Fernández

Use this to prepare each class in advance. Note that dates may change depending on how fast we advance.

All the paper homework assignments will be on the course webpage. You will also get a printed copy in class.

Date	Section number from text	Practice exercises from text
Mo 1/27	2.1 The Tangent and Velocity Problems	**p.82:** 1, 3,5, 7.
We 1/29	NO CLASS	
Th 1/30	2.2 The Limit of a Function	**p. 92:** 1-9, 11, 29-39 odd.
Mo 2/3	2.3 Calculating Limits Using the Limit Laws	**p. 103:** 1-33 odd, 41, 43, 45, 47.
We 2/5	2.5 Continuity	**p. 124:** 1-6, 13, 17, 19, 21, 23, 29, 35, 41, 43, 51, 55, 57.
Th 2/6	2.6 Limits at infinity; Horizontal Asymptotes	**p. 138:** 3, 5, 7, 15-41 odd, 47, 49.
Mo 2/10	2.7 Derivatives and Rates of Change	**p. 149:** 3, 5, 7, 9, 13, 15, 19, 21, 23, 25, 29.
We 2/12	NO CLASS	
Th 2/13	2.8 The Derivative as a Function	**p. 162:** 1, 3, 21-31 odd, 41, 43.
Mo 2/17	NO CLASS	
Tu 2/18	3.1 Derivatives of polynomials and Exponential functions	**p. 182:** 3-41 odd, 53, 59, 61.
We 2/19	Review	**p. 168:** 1-19 odd, 29-39 odd, 45, 49.
Th 2/20	**Midterm 1: Chapter 2**	
Mo 2/24	3.2 The Product and Quotient rule	**p. 190:** 1-37 odd, 43, 44, 49.
We 2/26	3.3 Derivatives of Trigonometric Functions	**p. 198:** 1-29 odd, 35, 39.
Th 2/27	3.4 The Chain Rule	**p. 206:** 1-59 odd, 65.
Mo 3/3	3.5 Implicit Differentiation	**p. 215:** 1-21 odd, 27-41 odd, 47.
We 3/5	3.6 Derivatives of Logarithmic and Inverse Trig. Functions	**p. 225:** 63-31 odd, 43-55 odd, 61-71 odd.
Th 3/6	3.7 Rates of Change in the Natural and Social Sciences	**p. 235:** 1-4, 7, 9, 11, 33.
Mo 3/10	3.9 Related Rates	**p. 252:** 1-4, 7, 9, 11, 17, 21.
We 3/12	3.10 Linear Approximations and Differentials	**p. 259:** 1-9 odd, 19, 45, 47.
Th 3/13	3.11 Hyperbolic Functions	**p. 267:** 1-6, 7-17 odd, 35-47.
Mo 3/17	4.1 Maximum and Minimum Values	**p. 287:** 3-6, 7-13 odd, 29-47, 51-65 odd.
We 3/19	Review	**p. 270:** 1-53 odd.
Th 3/20	**Midterm 2: Chapter 3**	
Mo 3/24	4.2 The Mean Value Theorem	**p. 296:** 5-8, 9, 11, 13, 15, 17, 23, 27, 29, 39.
We 3/26	4.3 What Derivatives Tell Us about the Shape of a Graph	**p. 305:** 1, 2, 5, 6, 8, 9-27 odd, 31, 43, 45-59 odd, 76, 77.
Th 3/27	4.3 What Derivatives Tell Us about the Shape of a Graph	**p. 305:** 1, 2, 5, 6, 8, 9-27 odd, 31, 43, 45-59 odd, 76, 77.
Mo 3/31	NO CLASS	
We 4/2	4.4 Indeterminate Forms and lHospitals Rule	**p. 317:** 5, 7, 9-69 odd, 77.
Th 4/3	4.5 Summary of Curve Sketching	**p. 328:** 1-53 odd.
Mo 4/7	4.7 Optimization Problems	**p. 343:** 3,5,7,8,15,19,21,25,27,31,47,55,63,79.
We 4/9	4.8 Newtons Method	**p. 355:** 1-7 odd, 11, 13, 29.
Th 4/10	4.9 Antiderivatives	**p. 362:** 1-4, 5-25 odd, 29, 31, 35, 43, 49, 54, 65-69 odd.
Mo 4/14	NO CLASS. SPRING BREAK.	
We 4/16	NO CLASS. SPRING BREAK.	
Th 4/17	NO CLASS. SPRING BREAK.	
Mo 4/21	5.1 The Area and Distance Problems	**p. 384:** 1-23 odd.
We 4/23	Review	**p. 365:** 1-17 odd, 19-33, 45, 65-73 odd.
Th 4/24	**Midterm 3: Chapter 4**	
Mo 4/28	5.2 The Definite Integral	**p. 397:**1-13 odd, 19-47 odd, 51-75 odd.
We 4/30	5.3 The Fundamental Theorem of Calculus	**p. 408:** 1-53 odd, 67-73 odd.
Th 5/1	5.4 Indefinite Integrals and the Net Change Theorem	**p. 418:** 1-23 odd, 27-53 odd, 69, 71.
Mo 5/5	5.5 The Substitution Rule	**p. 428:** 1-53 odd, 59-79 odd.
We 5/7	5.5 The Substitution Rule	**p. 428:** 1-53 odd, 59-79 odd.
Th 5/8	Review for the final exam	
Mo 5/12	Review for the final exam	
We 5/14	Review for the final exam	
Th 5/15	Review for the final exam	