## MATH 105 SECTION 4

# Calculus

## Fall 2022, Session 2

昆山杜克大学 DUKE KUNSHAN UNIVERSITY

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| Dates / Synchronous meeting time: | MoTuWeTh | 11:45—13:00 | AB2107 (Zoom: 948 5530 9514) |
| Recitation: | TuTh | 7:15—8:15 | IB 1046/1047 |
| Academic credit: | 4 | | |
| Hybrid course format: | video, lecture, recitation | | |
| ZOOM PASSCODE: | **MATH105** | | |

## Instructor's information


Dr. Lin Jiu — Lecturer of Mathematics, Duke Kunshan University; Assistant Professor of the Practice, Duke University
Email: lin.jiu@dukekunshan.edu.cn
Office: CC2057

Office Hours: Mon 20:00—21:00 Zoom Only (93594377559)
Wed 10:00—11:00 Office Only
or by appointment

## Teaching Assistants

**Recitation**: Tuesday and Thursdays, 7:15—8:15, IB1046/1047

Heng Yue — heng.yue@dukekunshan.edu.cn
Fridays: 13:30---14:30 — Zoom 9845325312, IB 1052

Lunji Zhu — Lunji.zhu@dukekunshan.edu.cn
Monday 7:30---8:30am — Zoom: 917 8155 3376, IB 1052

Yidan Mao — yidan.mao@dukekunshan.edu.cn
Monday 13:30---14:30 — Zoom: 808 830 1974, IB 1052

Shuhan Li — shuhan.li371@dukekunshan.edu.cn
Thursday 19:00---20:00 — Zoom: 984 5325312, IB 1052

**Test Grading**
Xintang Wang — Xintang.wang@dukekunshan.edu.cn

## Course Outline

We will cover most of the following materials from the textbook (*Tentatively, may up to some perturbation*).

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| **Week 1**<br><br>**(Oct. 24--28)** | • Syllabus<br>• Limits (1.2.2, 1.2.3).<br>• Continuity (1.2.4). |

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| **Week 2**<br><br>**(Oct. 31—Nov. 4)** | ● Derivatives and Differentiation Rules (1.3.1 - 1.3.4, including essential formulas from 1.3.5 and 1.3.9).<br>● Chain Rule (1.3.6).<br>● Derivatives of Inverse Functions (1.3.7).<br>● Implicit Differentiation (1.3.8).<br>● Related Rates (1.4.1).<br>● Linear Approximations (1.4.2). |
| **Week 3**<br><br>**(Nov. 7--11)** | ● Maxima and Minima (1.4.3).<br>● Mean Value Theorem (1.4.4).<br>● Derivatives and the Shape of a Graph (1.4.5).<br>● Asymptotes (1.4.6).<br>● Optimization (1.4.7)<br>**Midterm I, Nov. 10th 11:45—13:00 (Coverage: First TWO Weeks, AB 2107/1079)** |
| **Week 4**<br><br>**(Nov. 14--18)** | ● L'Hospital's Rule (1.4.8).<br>● Antiderivatives (1.4.10).<br>● Integration includes the Fundamental Theorem of Calculus (1.5.3) and the Net Change Theorem (1.5.4).<br>● Integrals Involving Exponential and Logarithmic Function (1.5.6).<br>● Integrals Resulting in Inverse Trigonometric Functions (1.5.7). |
| **Week 5**<br><br>**(Nov. 21--25)** | ● Substitution (1.5.5).<br>● Integration By Parts (2.3.1).<br>● Trigonometric Integrals (2.3.2).<br>● Trigonometric Substitution (2.3.3). |
| **Week 6**<br><br>**(Nov. 28—Dec. 2)** | ● Partial Fractions (2.3.4).<br>● Other Strategies (2.3.5)<br>● Improper Integrals (2.3.7).<br>**Midterm II , Dec. 1st 11:45—13:00 (Coverage: WEEK 3-5, AB 2107/1079)** |
| **Week 7** | ● Differential Equations (2.4.1, 2.4.2) |

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| **(Dec. 5—9)** | • Solving differential equations (2.4.3—2.4.5)<br>• Parametric equations and parametric curves (2.7.1—2.7.2)<br>• Review (if time permits) |

# *Final Exam*
# *December 14th, Wednesday,*
# *15:30—18:30, AB 1079 & AB1087*

## References for this Course

Calculus, Volume I, by OpenSTAX. https://openstax.org/details/books/calculus-volume-1

Calculus, Volume II, by OpenSTAX. https://openstax.org/details/books/calculus-volume-2

## Grading Policy

- Midterm I: Thur. Nov. 10, 11:45—13:00 (during lecture time) (13%+0.5%(formula sheet))
- Midterm II: Thur. Dec. 1, 11:45—13:00 (during lecture time) (13%+0.5%(formula sheet))
- Final: Dec. 12th (40%+1%(formula sheets))
- Homework: Weekly, WeBWork (4%*6=24%)
- Quiz: Weekly, during Thursday's lecture (8%)

**A+**= 98% - 100% **A** = 93% - 97.99%; **A-** = 90% - 92.99%; **B+** = 87% - 89.99%; **B** = 83% - 86.99%; **B-** = 80% - 82.99%; **C+** = 77% - 79.99%; **C** = 73% - 76.99%; **C-** = 70% - 72.99%; **D+** = 67% - 69.99%; **D** = 63% - 66.99%; **D-** = 60% - 62.99% **F** = 59.99% and below

As you can see, the final percentage will be rounded DOWN to the closest integer.

**Remarks:**

In case of documented illness or family emergency or documented University sponsored trips, you may miss the midterm, but the supporting documentation must be submitted to the instructor in advance. With the document, your missing midterm score can be counted as the same as your final. Do remember: let me know **BEFORE** the exam. An unexcused absence from any exam will be counted as a zero.

**Homework**

Weekly homework will be assigned each Thursday and will be due on the following Thursday's lecture, except for the last week. We will use the new WeBWork system for homework assignments. **No late homework will be accepted**. Each homework problem set is worth 4% and the LOWEST one will be dropped.

| Homework Assignment | Latest Release Date & Time(+8, Tentative) | Due Date & Time (+8) |
|---|---|---|
| HW1 | Thursday, Oct. 29, 2022, Before 23:59 | Saturday, Nov. 5, 2022, 23:59 |
| HW2 | Thursday, Nov. 3, 2022, Before 23:59 | Saturday, Nov. 12, 2022, 23:59 |
| HW3 | Wednesday, Nov. 9, 2021, Before 23:59 | Saturday, Nov. 19, 2022, 23:59 |
| HW4 | Thursday, Nov. 17, 2022, Before 23:59 | Saturday, Nov. 26, 2022, 23:59 |
| HW5 | Thursday, Nov. 24, 2022, Before 23:59 | Saturday, Dec. 2, 2022, 23:59 |
| HW6 | Wednesday, Nov. 30, 2022, Before 23:59 | Saturday, Dec. 10, 2021, 23:59 |
| HW7 | Wednesday, Dec. 8, 2021, Before 23:59 | Monday, Dec. 12, 2021, 23:59 |

**Quiz**

Weekly quiz will be assigned each week during **Thursday's lectures**, except for the weeks of Midterm tests. Each quiz will be counted 2%. The lowest will be dropped. Annoucements will be made to explain the coverage of each quiz.

**Midterm and Final Exam**

For each of the midterms, you are allowed to bring ONE A4 size formula sheet (double sided) and for the final exam, you are allowed to bring TWO pieces; When turning in your answer sheets, **formula sheet(s) should also be included and each piece will be given 0.5%.**

**Academic Integrity:**
**This is very important!**
Any misconduct behavior on homework, including but not limited to copying another student's homework paper, copying a solution found in another book or notes or website will, at minimum, result in a zero on that assignment and may result in a failing grade for the course. The incident will be reported to the Dean of Students.
The penalty on misconduct behavior on exam will be much more severe.

**Academic Policy & Procedures:**
You are responsible for knowing and adhering to academic policy and procedures as published in University Bulletin and Student Handbook. Please note, an incident of behavioral infraction or academic dishonesty (cheating on a test, plagiarizing, etc.) will result in immediate action from me, in consultation with university administration (e.g., Dean of Undergraduate Studies, Student Conduct, Academic

Advising). Please visit the Undergraduate Studies website for additional guidance related to academic policy and procedures. Academic integrity is everyone's responsibility.

**Academic Disruptive Behavior and Community Standard:**
Please avoid all forms of disruptive behavior, including but not limited to: verbal or physical threats, repeated obscenities, unreasonable interference with class discussion, making/receiving personal phone calls, text messages or pages during class, excessive tardiness, leaving and entering class frequently without notice of illness or other extenuating circumstances, and persisting in disruptive personal conversations with other class members. Please turn off phones, pagers, etc. during class unless instructed otherwiseIf you choose not to adhere to these standards, I will take action in consultation with university administration (e.g., Dean of Undergraduate Studies, Student Conduct, Academic Advising).

**Academic Accommodations:**
If you need to request accommodation for a disability, you need a signed accommodation plan from Campus Health Services, and you need to provide a copy of that plan to me. Visit the Office of Student Affairs website for additional information and instruction related to accommodations.