

Calculus I
Course Outline
Course 0941002 Section 30, Spring 2025
(Centrally coordinated by the Department of Mathematics)
Wednesdays 16:00 - 17:50, Thursdays 09:00 - 09:50, Room: E1-2 #306
Chungbuk National University

Updated on 28 February 2025. (Midterm and final exam schedules, make-up schedule)

This document prevails whenever interpretations of the course syllabus (the version in 개신누리) and that of this document conflict. This document contains terms and conditions on how this class will be administered throughout the semester. Registering for this class means you agree on plans, policies, and details in this document. You MUST drop this course if you disagree with any item listed in this document.

Instructor: Dr. Byungdo Park

Email: byungdo@chungbuk.ac.kr

Office hours: Wednesdays 14:00–14:50 at E1-1 #110 or by appointment.

Class webpage: Announcements, homework, exam schedules and other relevant information will be posted on the following webpage: https://byungdo.github.io/teaching/s2025_calc1.html which is also accessible via instructor's webpage: <https://byungdo.github.io/>

Textbook:

- 고두원 외, *미적분학*, 제1판(2024), 경문사, ISBN-13: 9791160736908.

References:

- Richard E. Johnson and Fred L. Kiokemeister, *Calculus With Analytic Geometry*, 6th Edition (1978), William C Brown Pub, ISBN-13: 9780205059171.
- Michael Spivak, *Calculus*, 4th Edition (2008), Publish or Perish, ISBN-13: 9780914098911.
- Tom M. Apostol, *Calculus, Vol. 1: One-Variable Calculus, with an Introduction to Linear Algebra*, 2nd edition (1991), Wiley, ISBN-13: 9780471000051.

Prerequisites: None, however the instructor assumes that you have mastered mathematics of the level of Precalculus (0941004) and the standard analytic geometry in high school curricula.

Overtallies: This section of Calculus I is for *Intelligent Systems and Robotics* major freshmen. Students from other majors are of course very welcome to enroll in this section, however, if the class is full, overtallies will be granted only to Intelligent Systems and Robotics major freshmen entered in March 2025. No need to put up any online request against it – it will be only dismissed.

Course description: Calculus on steroids. This is an year-long calculus course for college freshmen who already have a decent exposure to calculus. The first half, which is this course, covers all conventional topics in single-variable calculus including limit of functions and sequences, differentiation, integration, series convergence tests, Taylor expansions, and calculus on polar coordinates. Phrasing differently, this one-semester course covers virtually everything typically covered in an year-long Calculus I, II sequence in the US. Naturally, the pace will be quite rapid and at times you gotta bite the bullet since there won't be much room for you to relax and appreciate the material.

Course objectives: At the end of the course students should be able to:

- Evaluate limit of functions and understand formal definitions of limits and continuity.
- Find derivatives and apply differentiation rules.
- Understand the meaning of first and second derivatives and apply it for a curve sketching and related rates problems.
- Find antiderivatives by applying various integration techniques.
- Understand fundamental theorem of calculus and apply it for various practical calculations involving integrals.
- Do calculus in polar coordinate.
- Evaluate limit of sequences and carry out convergence tests for series.
- Understand the radius of convergence of power series as well as power series representation of functions.

Details on class proceeding: The instructor will give lectures on the material following the weekly lesson plan and assign weekly homework problems.

Grading policies: Centrally coordinated midterm exam 40%, centrally coordinated final exam 40%, Quiz I 5%, Quiz II 5%, and attendance 10%. See details below. Note that there will be *zero discretion* that the instructor of this section applies. Grading policies in the attendance policies, academic integrity policies, classroom attitude policies, centrally coordinated section policies are applied in higher priority (in this order). Those who are in their final semester and have to show up to work during the semester, special rules apply in accordance with the university policies (cf. 충북대학교 학칙 제34조의2, 학사운영규정 제86조의3).

Centrally coordinated section policies: This section is a centrally coordinated Calculus I course by the Department of Mathematics. (Principal coordinator: Professor Jaemin Shin)

- Students in centrally coordinated Calculus I sections will take centrally coordinated midterm and final exam in the following schedule.
 - (i) Midterm: 29 April 2025 (Tuesday), 19:00–20:00.
 - (ii) Final: 17 June 2025 (Tuesday), 19:00–20:00.

- Midterm and final exam scores of this section will be merged with other centrally coordinated sections and the principal coordinator will assess the appropriate *average grade point* for this section.
- The instructor will then assign letter grades as follows.
 - (i) Start from the total %-score from the above grading policies, absolutely grade (A+: 95 points and up, A0: 94.99–90 points, B+: 89.99–85 points, B0: 84.99–80 points, C+: 79.99–75 points, C+: 74.99–70 points, D+: 69.99–65 points, D0: 64.99–60 points, F: less than 60 points) and calculate average grade points.
 - (ii) Adjust the average grade points by adding or subtracting the same %-score (shifting factor) until the average grade point of the class equals to the average grade point that the principal coordinator gives.
 - (iii) The grade point from your adjusted total %-score (your original %-score plus the shifting factor) will determine your letter grade.
- Those hours for taking centrally coordinated exams will be counted as regular class meetings. Your midterm date will make up the Labor day and April 30th, 17:40–17:50 (10 minutes). Your final exam will cover June 11th 17:40–17:50 (10 minutes) and June 11th 09:00–09:50 (50 minutes).
- Make up exams will not centrally coordinated and will be handled by the instructor of respective sections. [2025.1.13. confirmed by the principal coordinator]

Homework policies: A list of homework problems will be posted on the class webpage roughly in weekly basis. The instructor will assign as many homework problems as it is needed to master the subject. However, homework will not be collected, will not be graded, and will not be used as a constituent of your final score.

Quiz policies: There will be two in-class quizzes (each 20 minute long) in the following schedule:

- Quiz I: April 10th, 09:30–09:50.
- Quiz II: May 29th, 09:30–09:50.

When you hand-in, you must present your valid ID satisfying the following criteria

- 실물신분증: 주민등록증, 운전면허증, 여권, 공무원증, 충북대학교학생증. 이밖의 신분증은 시험 전일까지 담당교수에게 사전 승인을 받은 경우에만 인정.
- 모바일신분증, 모바일학생증: 불인정(공동관리 공통 강의계획서 제5호 수강에 특별히 참고하여야 할 사항 중 제5호에서 “강의시간중에 휴대폰을 비롯한 전자기기의 사용을 금합니다”라고 정하고 있으므로, 휴대폰 등 전자기기를 사용하여야만 행사할 수 있는 모바일 신분증은 인정 불가)
- 유효기한 지난 신분증 및 서류 불인정
- 모든 종류의 신분증 출력본, 사진촬영본 불인정

- 신분증 확인에 대하여 어떠한 예외도 인정하지 않으며, 어떠한 사정설명도 허락하지 않음. 유효한 신분증을 제시하지 못하는 경우 0점 처리함.

Classroom attitude policies: The instructor may apply up to 2.5 points per day (up to 5 points per day for repeated cases) of deduction of your total score against any of your attitude which the instructor views it inappropriate. The sum of total score deduction due to these policies may not exceed 10 points throughout the semester. Inappropriate attitudes are (i) anything you do in the classroom that disturbs and/or distracts the instructor or other students or (ii) disturbing and/or distracting the instructor from administering this class. If you violate, you will be notified via email registered in `개신누리` and it gets confirmed if you do not dispute in a written form in 7 days.

Attendance policies: (1) Attendance data will be collected in every class meeting and will be used for determining your final grade. You will get a grade F if you have missed more than 25% of class meeting hours. Up to 3 hour of absence there is no penalty on your score. After that, you lose 1.25% of total score for an absence to each 50-minute long class meeting, with a maximum total loss 10% from your total score.

(2) If you have permissible reasons for your absence in accordance with the Regulation on Academic Management of the CBNU Article 52(1) (충북대학교 학사운영규정 제52조(공결승인) 제1항), you will need to contact your department secretary to follow the procedure for getting an approval on your absence bringing proper documentation as proof. That said, you have to fill out a form and submit it along with appropriate proofs before the absence or after seven days of the date of absence.

(3) If you responded to an attendance call and leave the classroom (even if you come back later) while the lecture is still going on, you will be considered to be absent for that attendance call *if you report later to the instructor that you left during the class within that day's class*. If you don't report and your arbitrary and sudden leave gets caught, you will be considered to be absent for that day's class and it will be treated as a violation of classroom attitude policies.

(4) Any dispute about in-class attendance records must be made before the instructor physically leaves the classroom after that day's class meeting.

Makeup exam policies: If you could not take any exam (quizzes included) and would like to take a makeup exam to the missing exam, you must follow the following guideline:
<https://byungdo.github.io/teaching/makeup.pdf>

Assessment of learning: The assessment will be based on the abovementioned grading policy.

Important dates:

- Thursday, May 1st – Labor day. Make-up schedule: Midterm exam

Weekly lesson plan: Omitted. We shall follow the official schedule on the course syllabus.

Dispute policies: (1) For your midterm and final exams, we shall follow policies of Department of Mathematics. The instructor is only responsible for your disputes on quizzes.

(2) The instructor will announce a date and an interval of time for you to see (and dispute if you wish) your graded papers. For that you have to respond and set up an appointment by email until the specified deadline. If you respond, the instructor will give you a specified date, time, and location for you to show up. There will be an option to give up your rights to dispute and just get notified your scores by email.

(3) If the specified date and an interval of time in the announcement conflicts with your other classes or other equivalently official schedules, you may request a rescheduling by attaching your time table or a relevant document showing that you have other official matters.

(4) If you do not respond by the deadline in each announcement, the instructor will have to assume that you give up your right to dispute and the grading is flawless. For example, if you inquire after your letter grade is assigned, the instructor will only look into whether there is any error in entering your final grade and will dismiss all inquiries on the raw data.

Accommodating disabilities in learning and assessment: The instructor is committed to providing access to all students. If you need accommodation in classroom or in assessment, you are encouraged to set up an appointment with the instructor at your soonest availability so that we can figure out the best way to accommodate you. Possible accommodations include, but not limited to, provision of materials from lectures, permission to hire an assistant for taking notes, audio-recording lectures, and aid/assistant devices, extension of due dates for assignments, alternative assessment for in-class presentations, extension of exam hours, and provision of an accommodating exam locations and exam sheets.

Academic integrity: For the centrally coordinated exams, we shall follow academic integrity policies of the Department of Mathematics and the principal coordinator. For all in-class quizzes, it is expected that you will complete all quizzes without giving or receiving help from anyone. Electronic devices are not allowed in any in-class quizzes. If you violate any of these policies, you receive score zero to that quiz at the discretion of the instructor. In addition, your case will be handled through the standard procedure of the university. Note that a use of your smartphone during an exam is simply a cheating.

Email policies: All emails addressed to the instructor should have a title containing the course title, name, and a brief summary as well as a body starting with "Dear Professor Last name" and ending with "Sincerely, Your full name", which contains greetings, your name and department, a brief and clear purpose written politely. Any email deviating from this format will not be accepted and will be dismissed without any rejection reply. The corresponding disadvantages are solely and entirely on the student.

이메일 작성규칙: 담당교수에게 보내지는 모든 이메일의 제목에는 과목명, 신원, 요지가 포함되어 있어야 하며, 본문은 반드시 "OOO 교수님께"로 시작하여 인사, 신원, 용건을 간단 명료하고 예의 바르게 기술한 후 "OOO 올림" 또는 "OOO 드림"으로 끝나야 합니다. 이 형식에 어긋난 이메일은 접수하지 않으며, 반려회신 없이 종결합니다. 이에 따른 불이익은 전적으로 학생의 단독 책임입니다.

English usage policies: Lectures in this course will be given in Korean, but most of written materials will be in English. For example, the course syllabus, most of boardwork, exam problems, homework, solutions to exams, course webpage, announcements, but not limited to those. English sentences to be used in this course should be understandable enough based on the regular Korean public high school curriculum. Nonetheless if your English skill is not competent enough to follow this course or understanding announcements, it is your responsibility to ask the instructor to also provide an explanation in Korean. The instructor will take those questions under an attitude of helping students' understanding, but taking into account the contents of each question, he may reject the question or advise the questioner to visit him during his office hour to ask the question about Korean translation.

영어 사용 정책: 본 강좌에서 강의는 한국어로 이루어지지만, 글의 경우 대부분 영어가 사용될 것입니다. 수업계획서, 칠판 판서의 대부분, 시험문제, 숙제, 시험문제에 대한 풀이, 강좌의 웹페이지, 공지사항 등이 예가 될 수 있으며, 이상 열거한 것들로 한정되지 않습니다. 본 강좌에서 사용될 영어 문장들은 한국의 공립 고등학교 정규 교과과정을 기초로 할 때 충분히 이해될 수 있어야 합니다만, 만약 수강생 본인의 영어실력이 본 강좌를 따라오거나 공지사항을 이해하기에 충분치 못하다면, 담당 교수에게 한국어로 추가 설명을 요청하는 것은 학생 본인의 몫입니다. 담당 교수는 학생들의 이해를 도우려는 자세로 질문을 받을 것이지만, 질문의 내용에 따라 답을 하지 아니할 수도 있고, 면담시간에 개별 방문하여 질문하도록 안내할 수도 있습니다.