

MA1201 Calculus and Basic Linear Algebra II
Semester A 2019/20 Course Information

1. OBTL and course website of MA1201
 - (a) MA1201 adopts OBTL practice.
 - (b) Please visit the MA1201 Canvas course website regularly for any update (announcements, course materials, etc.).
2. Course content of MA1201
 - (a) Definite and indefinite integrals; techniques of integration: integration by substitution, integration by parts, and integration of rational functions
 - (b) Physical and geometric applications of integration: area, volume of revolution, arc length, surface area of revolution
 - (c) Vectors in R^2 and R^3 ; scalar products, vector products, triple scalar products; linear (in)dependence
 - (d) Arithmetic of complex numbers; Cartesian, polar and Euler forms; De Moivre's theorem and its applications
 - (e) Matrices; determinants, cofactor expansion; systems of linear equations, Gaussian elimination, Cramer's rule; matrix inverses, Gauss-Jordan elimination method
3. Teaching sequence: Chapter 4 Vector algebra
Chapter 1 Basic concept of integration
Chapter 2 Integration technique
Chapter 3 Application of integration
Chapter 5 Complex number
Chapter 6 Matrix, determinant and system of linear equations

We start from Chapter 4, not Chapter 1

4. Reference books, lecture notes and assignments
 - (a) Reference books
 - *Basic Calculus and Linear Algebra* (Compiled by Department of Mathematics, City University of Hong Kong), Pearson Custom Publishing, 2007
(Available at CityU Bookstore)
 - C. Henry Edwards and David E. Penney, *Calculus: Early Transcendentals*, 7th ed., Pearson Prentice Hall, 2014
 - Robert A Adams and Christopher Essex, *Calculus: A Complete Course*, 8th ed., Pearson Addison Wesley, 2013
 - Frank Ayres and Elliott Mendelson, *Calculus*, 6th ed., Schaum's Outlines Series, McGraw Hill 2013
 - Fred Safier, *Precalculus*, 3rd ed., Schaum's Outlines Series, McGraw Hill 2013
 - Kwok Chiu Chung, *A short course in Calculus and Matrices*, 3rd ed., McGraw Hill, 2013
 - David C Lay, Steven R Lay and Judith McDonald, *Linear Algebra and Its Applications*, 5th ed Pearson Addison Wesley, 2016
 - Glyn James, *Modern Engineering Mathematics*, 5th ed., Pearson Prentice Hall, 2015
 - (b) Lecture notes
 - Only topics covered in the notes will be assessed.
 - In case notations in notes differ from the corresponding ones in the reference books, we follow the notations in the lecture notes.
 - (c) Problem sets
 - For self-practice and demonstration in tutorials. (Although students are *not* required to submit their solutions for grading, they are strongly encouraged to practice at home before attending tutorials, in order to get more hands-on experience before the midterm and final exams).

5. Grading scheme and policy

- (a) Coursework (30%): three take-home assignments (3% each) + one 1.5 hour midterm (21%)
Final exam (70%)
- (b) Remedy work for midterm test: those students who scored less than 50 points in the midterm should redo the questions in the test again, and hand in the solutions to their TA within one week of the release of the test results. If a remedy work is expected but is not received, 10 points will be taken off from the student's *total grade* (keep in mind that the entire midterm test is worth only 21 points in the total grade).
- (c) Final exam policy
All students sit for the *same three-hour* final examination, which consists of the following materials:
 - Definite and indefinite integrals; techniques of integration: integration by substitution, integration by parts and integration of rational functions
 - Physical and geometric applications of integration: area, volume of revolution, arc length, surface area of revolution
 - Vectors in R^2 and R^3 ; scalar products, vector products, triple scalar products; linear (in)dependence
 - Arithmetic of complex numbers; Cartesian, polar and Euler forms; De Moivre's theorem and its applications
 - Matrices; determinants, cofactor expansion; systems of linear equations, Gaussian elimination, Cramer's rule; matrix inverses, Gauss-Jordan elimination method
- The final exam is 100 points in total.
- (d) Minimal requirement: $\text{Coursework} \times 30\% + \text{Final exam} \times 70\% \geq 40$
and $\text{Final exam} \geq 30$.

6. When and where to get assistance

- (a) Tutorials: students are advised to attend tutorials every week to get help from the tutors.
- (b) PALS (Peer Assisted Learning scheme using Supplementary Instruction model): the program aims at enhancing students' understanding in course materials and at improving students' overall learning and reasoning skills. Regularly or weekly scheduled from Week 4 to Week 12, out-of-class and senior peer-facilitated revision sessions are open to all registered students taking PALS courses MA1201. We recommend every student who needs more help in mathematics to join the program. For more information, please visit:
<http://www.cityu.edu.hk/edge/pals/>
- (c) Mathematics help center: the center operates from Week 6 to the end of the examination period. It offers assistance to undergraduate students who experience difficulty in studying particular courses offered by the Department of Mathematics. Students are advised to book a session of 15 minutes first before visiting the center, and tutor(s) will be available for consultation. For booking and more information, please visit:
<http://www6.cityu.edu.hk/ma/ug/mhc.htm>