Mathematics AII
Multivariable Integral Calculus and Ordinary Differential Equations

Course Information
School year: 3rd, Required for all departments
Semester/Term: Fall (October - February)
Schedule: 90 minutes, twice a week (total 30 lectures)
Credit hours: 2
Prerequisites: Mathematics AI

Course Description
Multiple integral; change of variables and Jacobian; ordinary differential equation of the first order; linear differential equation of the second order with constant coefficients

Instructors
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Course Outcomes
Upon completion of this course/program a student will be able to:
1. Change the order of integration and compute multiple integrals.
2. Change variables of integration with Jacobian and compute multiple integrals.
3. Understand the definition of improper integral and evaluate Gaussian integral as an application of double integral.
4. Find volumes of solids bounded by surfaces.
5. Determine the surface area of the graphs of two-variable functions.
6. Evaluate the mean of multivariable functions in a domain.
7. Separate variables and solve first order differential equations, and apply it to homogeneous form.
8. Solve linear differential equations of the first order with the method of variation of constants.
9. Solve linear homogeneous/imhomogeneous differential equations with constant coefficients of the second order.
10. Find series solutions of differential equations.

Textbook
Differential and Integral II (Second Edition)
by K. Arai, H. Usui, H. Saitoh, M. Suzuki, S. Takato and K. Mukouyama
Dainippon tosho, Tokyo, 2004.
(in Japanese) pp.58-129
http://www.dainippon-tosho.co.jp/textbook/hs_uc/university_04.html

Grade Distribution
Midterm Exam: 40%
Final Exam: 40%
Assignments, Quizzes: 20%

Grading Policy and Criteria
Final grades will be a percentage of points earned versus points possible.
80 - 100%   A
70 - 79%   B
60 - 69%   C
Below 60%   D (disqualified)

Questions
Please contact one of the instrcutors listed above if you have questions or suggestions concerning the syllabus.