Department of Applied Mathematics (Applied Mathematics Division) Graduation Requirements for Students Enrolled after 2025

Items	Items

I. Years of Enrollment：

Minimum years of enrollment：4 years (5 years for Veterinary Medicine)

Can be extended for 2 more years (excluding 2 years of suspension)

II. Minimum graduation credits required: 128 credits

III. Courses required by the university curriculum:

1. Physical Education: **2** credits, not included in the credits for graduation. Extra taken PE course credits will be counted as from other departments, and are limited to a maximum of 2 credits. Athletes with outstanding sports achievements will be handled according to the relevant regulations of the Office of Physical Education and Sports.

2. English Proficiency Requirement: 0 credit.

3. General Education：28 credits

   i. Core Competencies: at least 3 credits. International students do not need to take the "Information Literacy" course. Students are exempted from taking the course, but if they take the course, it will not be counted as a graduation credit.

   ii. Language Competencies: (at least 8 credits)
   - Native Language and Literature : 4 credits
     Narrative Expression: Language Literacy
     Narrative Expression: Language Application
   - Foreign Language: at least 4 credits and at most 6 credits.
     ■English Communication and Expression
     ■Academic English：Listening and Reading
     □Academic English：Speaking and Writing

   iii. Domain Competencies: at least 10 credits
   - Humanistic Domain, Social Science Domain, and Natural Domain: at least one course in each Domain, total at least **6** credits.
   - Integrated Domain: at least 4 credits.
   - For National Defense education courses, only credits of 1 course can be counted as general education credits.
   - Our program belongs to the area of <u>Mathematical Statistics,</u> therefore, only one course from this area will be recognized.

   Ⅳ. Extra credits ■can □can't be counted in the graduation credits.(Maximum 4 credits)

IV. Courses required by college curriculum: 0 credits

V.

1、Required professional courses by the department: 46 credits.

Core Course Title	Semester/Year	Credits
1. Calculus(I)	Semester	4
2. Calculus(II)	Semester	4
3. General Physics	Year	6
4. Calculus with Python	Semester	1
5. Introduction to Mathematics	Semester	3
6. Computer Programming	Semester	3
7. Data Structures	Semester	3
8. Linear Algebra (I)	Semester	4
9. Linear Algebra (II)	Semester	4
10. Introduction to Analysis (I)	Semester	4
11. Introduction to Analysis (II)	Semester	4
12. Differential Equations	Semester	3
13. Algebra (I)	Semester	3
14. Seminar in Industrial and Applied Mathematics	Semester	0

2、Optional Required courses by the department: not less than 18 credits

Core Course Title	Semester/Year	Credits
1. Numerical Analysis (I)	Semester	3
2. Vector Calculus	Semester	3
3. Numerical Analysis (II)	Semester	3
4. Partial Differential Equations	Semester	3
5. Statistics	Semester	3
6. Introduction to Probability	Semester	3
7. Algebra (II)	Semester	3
8. Discrete Mathematics	Semester	3
9. Graph Theory	Semester	3
10. Statics	Semester	3
11. Dynamics Mechanics	Semester	3
12. Geometry	Semester	3
13. Topology	Semester	3
14. Mathematical Statistics (I)	Semester	3
15. Mathematical Statistics (II)	Semester	3
16. Functions of Complex Variables	Semester	3
17. Thermodynamics (I)	Semester	3
18. Fluid Mechanics (I)	Semester	3
19. System Programming	Semester	3
20. Operating Systems	Semester	3
21. Computer Architecture	Semester	3
22. Introduction to Data Science	Semester	3
23. Numerical Methods for Partial Differential Equations	Semester	3
24. Computational Algebraic Geometry	Semester	3

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VI. Minimum of professional elective credits: 15 credits
The excess of 18 credits over the number of credits of Optional Required courses by the department may be counted as professional elective credit.
Students in the Applied Mathematics Division who take courses in the Data Science and Computational Science Division agree to be recognized for departmental professional elective credit.

VII. Other Regulations: Course Requirements for Bachelor's Degree Programs in Applied Mathematics

VIII. Minor Degree: If a student intends to study for a minor degree, he/she will need to take 20 (or more) credits in addition to the department's minimum credits required for graduation. For more details, please see the bulletin of Curriculum Division website.

IX. Double Major: The graduation requirements for students in pursuit of a double major (department or degree program) shall be based on the relevant regulations applicable at the time (year) when the application was approved. Double major students not only have to fulfill all graduation credit requirements of their original major (department or degree program), they must also complete all core courses for the second major (department or degree program) in order to be granted a double major degree.

 Undergraduate students who did not complete or are short of 40 credits for the second major must make up for those credits by taking courses designated by the second-major department or degree program.

X. Cross-Disciplinary Expertise Development Program: For students whose compulsory courses and credits are the same as the ones offered by the departments (degree programs), double major, minor, or other cross-disciplinary expertise programs providing cross-disciplinary expertise courses, they shall take other elective courses that are related to their expertise and designated by the departments (degree programs) or colleges providing cross-disciplinary expertise module courses.

XI. Students who graduate from the study period of the senior high school less than 6 years will be required to take at least 12 extra credits in their graduation requirements.

Coordinator 系(所、學位學程)承辦人：   Chairperson 系所主管簽章：