

National Chiao Tung University Department of Applied Mathematics PhD Graduate Students  
Courses and Qualifying Examination Regulations

79,80,83,85,87,91,93,95/4 revised

Applicable to the 95<sup>th</sup> academic year enrolled Students

Courses:

1. PhD students must complete 18 credits (those who continue from M.S program must complete 30), at least 12 of those are offered by the department. Regular courses are as follows:

Analysis and Geometry:

1. Real Analysis (required)
2. Ordinary Differential Equations
3. Partial Differential Equations
4. Numerical Analysis
5. Functional Analysis
6. Operator Theory
7. Differential Geometry
8. Number Theory
9. Probability Theory
10. Colloquium (4 passes are required upon graduation)

Combinatorics:

1. Graph Theory (required)
2. Algebraic Graph Theory
3. Design and Analysis of Algorithm
4. Group Testing
5. Interconnected Networks
6. Design Theory
7. Coding
8. Cryptography
9. Topics in Discrete Mathematics
10. Colloquium (4 passes are required upon graduation)

2. Must pass the 2<sup>nd</sup> stage of the high-intermediate level of the General English Proficiency Test.

#### Qualifying Examination Subjects:

##### Analysis and Geometry:

1. Ordinary Differential Equations
2. Partial Differential Equations
3. Numerical Analysis
4. Functional Analysis
5. Differential Geometry
6. Real Analysis
7. Probability Theory
8. Number Theory

##### Combinatorics:

1. Graph Theory
2. Algorithm, Combinatorial Optimization (1 of 2)
3. Design Theory, Coding Theory (1 of 2)
4. Number Theory, Cryptography (1 of 2)

#### Allocated Qualifying Examination Duration and Time

1. All examinees must pass 2 subjects (no inter divisional examination is allowed).
2. Students, within the first two years of enrollment (temporary suspensions excluded), must pass at least one subject and, within three years, pass two different subjects. Failing to do so will lead to immediate drop out.
3. Students can request to take the Qualifying Examination starting from the end of the first semester of enrollment. The desired examination subject must be made at the end of previous semester. An examination formulation panel will then be set up by the head of department and finalized by the department course committee.