

The logo consists of a red square with a white border. Inside the square, the text "NCSU Math Quals Presentation" is written in white, bold, sans-serif font, centered vertically and horizontally.

NCSU Math Quals Presentation

What is a qualifying exam?

- written exams in three subjects selected by the student from a list of twelve possibilities represented by a two-semester sequence of courses

MA 515-715 Analysis

MA 520-720 Linear and Lie Algebras

MA 521-721 Abstract Algebra

MA 522-722 Computer Algebra

MA 523-723 Applied Matrix Theory

MA 524-724 Combinatorics

MA 531-731 Systems and Control

MA 534-734 Partial Differential Equations

MA 546-747 App. Prob. and Stoch. Process

MA 555-753 Geometry and Topology

MA 573-774 Modeling

MA 580-780 Numerical Analysis

- “The purpose of the exams is to ensure that each Ph.D. student studies three subjects to a depth that gives adequate preliminary background to begin a Ph.D. project.”

What is a qualifying exam?

- Written and graded by two faculty members
- Written as a three hour exam
- Must pass three quals by January of third year (second year for masters students)
 - Allowed up to one retake for each failed exam (a total of 6 chances)
 - Retake does **not** need to be the same exam
 - Exams taken by incoming first year students **do not** count against your number of chances
 - Number of exams taken cannot exceed remaining number of passes needed

How should I study?

- Everyone studies a little differently
- Use the study guide provided by exam writers
- Look at previous qualifying exams (preferably written by the current writers)
- Look at course materials, e.g. exams, homeworks, and book

DO NOT START STUDYING IN MAY!!!!

- Start studying some time in June/July and don't burn yourself out

What quals should I take?

- Dependent upon what you want to study:
 - Algebra - Linear/Lie, Abstract, and one of Combinatorics or Geometry/Topology
 - Analysis/Diff eq - Analysis, PDE's
 - Biomath - Modeling, Numerical Analysis, Controls, Matrix Theory
 - Combinatorics - Abstract, Combinatorics, Analysis, Linear/Lie, Geometry/Topology
 - Financial Math - Probability, PDE's, and one of Numerical Analysis or Controls
 - Geometry/Topology - Geometry/Topology, Abstract, one of Analysis, Linear/Lie, Combo, PDE's
 - Modeling/Controls - Controls, Modeling, and one of Analysis, Matrix Theory, PDE's, Numerical
 - Numerical/Scientific Computing - Numerical, and two of Analysis, Modeling, Probability, PDE's
 - Probability - Probability, Analysis, and one of Matrix Theory, Controls, PDE's
 - Symbolic Computation - Computer Algebra, two of Linear/Lie, Abstract, Matrix Theory, Num.
- Ask the people you are interested in working with!

References

- Department Website:
<https://math.sciences.ncsu.edu/graduate/ph-d-programs/>
- Graduate Student Guide:
<https://math.sciences.ncsu.edu/graduate/graduate-student-guide-for-mathematics/>
- Other graduate students!