

**Proposal for changes to the mathematics and statistics curriculum 2011-12, UTSC – effective September 2012** The specialist program in mathematics now has four streams:

- Comprehensive (= previous “Specialist program in mathematics”)
- Teaching
- Statistics
- Design-your-own

Requirements:

**Common core:**

- Writing requirement (one half course, A or B level)
- A- level courses:
  1. MATA23 Linear algebra
  2. MATA31 and MATA37 Calculus
  3. CSCA08 Computer programming

- B-level courses:
  1. MATB24 Linear algebra
  2. MATB41, MATB42 Multivariable calculus
  3. MATB43 Intro to analysis (first ‘proofs’ course)
  4. MATB44 Differential equations
  5. STAB52 Intro to Probability
  6. STAB57 Intro to Statistics
- C-level courses:
  1. MATC01 Groups and Symmetry
  2. MATC34 Complex variables

## Upper-level course requirements

### (a) Comprehensive stream:

1. Elementary courses in related disciplines:
  - CSCA48 (a further computer science course)
  - PHYA10, PHYA21 Intro to Physics IA, IIA
2. Algebra and analysis:
  - C37 Intro to Real Analysis
  - C46 Differential Equations II
  - D01 Fields and Groups

3. Courses in key areas of math: three of

- C15 Number theory
- C27 Topology
- D02 Plane geometries
- D34 Complex variables II

4. Discrete math: one of

- C09 Logic
- C32 Graph Theory
- C44 Combinatorics
- CSCC37 Numerical methods
- CSCC63 Computability/complexity

5. Electives: 3 C-or D-level MAT courses

## **(b) Statistics stream:**

1. Algebra/analysis:
  - B61 Linear programming
  - C46 Differential equations II
  - D01 Fields and groups
2. Regression analysis: STAC67
3. Discrete math: one of
  - C32 (Graph theory)
  - C44 Combinatorics
  - D02 Plane geometries
4. Upper level MAT electives: two C-or D-level MAT courses
5. Upper level STA electives: four C-or D-level STA courses (can substitute ACTB47)

## **(c) Teaching stream:**

1. Algebra/analysis:
  - C15 Number theory
  - C82 Mathematics for teachers
  - D01 Fields and groups
  - D02 Classical plane geometries
2. Discrete math: one of
  - C32 (Graph theory)
  - C44 Combinatorics
3. MAT electives: three C-or D-level MAT courses
4. MAT/STA/CS electives: three C-or D-level MAT, STA or CS courses

## Changes to specialist program:

### *Comprehensive stream:*

- overall number of required credits increased by one half course (from 26 to 27 credits)
- Computer science requirement changed to CSCA08 and CSCA48
- MATC37 (Introduction to Real Analysis) is now a required course
- requirement of CSCD03 or PSCD02 eliminated

### *Statistics, Teaching, Design-Your-Own:*

- overall number of required credits decreased by one half course (from 26 to 25 credits)

- Computer science requirement changed to CSCA08 (previously students could substitute PSCB57)
- requirement of CSCD03 or PSCD02 eliminated

# Major program in mathematics

## 1. First year courses:

- MATA23 linear algebra
- MATA30 followed by MATA36 (calculus for physical sciences) OR MATA31 followed by MATA37 (calculus for mathematical sciences)
- CSCA08 (intro to computer science)

## 2. Second year courses:

- B24 Linear algebra:
- B41 followed by MATB42 Multi-variable calculus
- B44 Differential equations:
- STAB52 Probability:

3. Third and fourth year courses: one of
  - C01 Group theory or
  - C15 Number theory
4. Analysis: Two of B43, C27, C34, C35, C37, C46, D34
5. Algebra and geometry: Two of TC01, C09, C15, C32, C44, C63, D01, D02
6. Any two C-or D-level courses in MAT, STA or CSC. May substitute MATB61 or STAB57.

## **Changes to Major Program:**

- CSCA08 is now required
- MATB44 is now required
- MATB61 is added to electives