Sylvester II Institute Curriculum

BSc Mathematics (Pure and Applied Tracks)

- preferably STEM Track in SHS
- normal intake in January; students may apply each semester
- three subjects each semester with general education

Semester 0

- Math Camp (Calculus, Matrix Algebra, Geometry)

Semester 1

- Formal Logic and Set Theory
- Ordinary Differential Equations (Applied)
- Number Theory I (Pure/Applied)
- Linear Algebra and Vector Spaces

Semester 2

- Real Analysis I (Requires Formal Logic and Set Theory)
- Probability Theory (Applied; requires Linear Algebra and Vector Spaces)
- Group Theory (Pure)
- Partial Differential Equations (Applied; requires Ordinary Differential Equations)
- Number Theory II (Pure)

Semester 3

- Real Analysis II (Requires Real Analysis I)
- Mathematical Statistics (Applied; requires Probability Theory)
- Galois Theory (Pure)
- Optimization Theory (Applied; requires Real Analysis I)
- Cryptography (Pure/Applied; requires Number Theory I)

Semester 4

- Complex Analysis (Requires Real Analysis II)
- Ring Theory (Pure)
- Analysis on Manifolds (Applied; requires Real Analysis II)
- Elementary Differential Geometry (Pure/Applied)
- Point-Set Topology (Pure/Applied)

Semester 5

- Measure Theory I
- Elective
- Elective

Semester 6

- Measure Theory II
- Elective
- Elective

Semester 7

- Thesis

Semester 8

- Thesis

Electives

- Stochastic Calculus (Requires Probability Theory)
- Stochastic Processes (Requires Stochastic Calculus)
- Measure Theoretical Probability (Requires Measure Theory I)
- Decision Theory (Requires Real Analysis II, Probability Theory)
- Theory of the Firm and Industrial Organization (Requires Real Analysis II, Probability Theory)
- Regression Analysis (Requires Mathematical Statistics)
- Scientific Programming I-II
- Time Series Analysis (Requires Mathematical Statistics)
- Microeconometrics (Requires Mathematical Statistics)

BSc Physics

BSc Mathematical Economics

- preferably STEM Track in SHS - can skip Calculus subjects and take electives
- normal intake in September; students may apply each semester
- three subjects each semester with general education

Semester 1

- Calculus 1
- Linear Algebra
- Set Theory and Formal Logic

Semester 2

- Calculus 2 and Optimization (requires Calculus 1)
- Human Action (von Mises) - Basic Microeconomics
- Man, Economy, and State - Basic Macroeconomics

Semester 3

- Ordinary Differential Equations
- Probability Theory (Requires Calculus 1, Linear Algebra)

- Intermediate Microeconomics

Semester 4

- Stochastic Calculus (Requires Calculus 2, Probability Theory)
- Mathematical Statistics (Requires Probability Theory)
- Intermediate Macroeconomics

Semester 5

- Microeconometrics (Requires Mathematical Statistics)
- Elective
- Elective

Semester 6

- Time Series Analysis (Requires Mathematical Statistics)
- Elective
- Elective

Semester 7

- Thesis (Abrogated for BSc-MSc)

Semester 8

- Thesis (Abrogated for BSc-MSc)

Electives

- Real Analysis 1
- Real Analysis 2 (Requires Real Analysis 1)
- Scientific Programming 1-2
- Measure Theory 1
- Measure Theoretical Probability (Requires Measure Theory 1)
- Game Theory (Requires Stochastic Calculus)
- Stochastic Processes (Requires Stochastic Calculus)
- Computable General Equilibrium Modelling
- Computational Operations Research (Requires Calculus 2)

BSc-MSc Economics Track

Semester 7

- Decision Theory (Requires Real Analysis II, Probability Theory)
- Theory of the Firm and Industrial Organization (Requires Real Analysis II, Probability Theory)
- Topics in Macroeconomics

Semester 8

- Elective
- Elective
- Elective

Semester 9

- Thesis

Semester 10

- Thesis

MSc-specific Electives

- Optimization Theory (Requires Real Analysis I)
- Financial Economics (Requires Stochastic Processes, Decision Theory)
- International Trade (Requires Topics in Macroeconomics)
- Topics in Game Theory (Requires Game Theory, Decision Theory)

General Education

- Aristotelian Physics
- Aristotelian Metaphysics (Requires Aristotelian Physics)
- Aristotelian Ethics (Requires Aristotelian Metaphysics)
- Aristotelian Politics (Requires Aristotelian Ethics)
- Foundations of Political Theory (Requires Aristotelian Politics)
- Modern Scholarship in Philippine History
- Annales School Historiography (Requires Modern Scholarship in Philippine History)