Williams students should be adept at reasoning mathematically and abstractly. The ability to apply a formal method to reach conclusions, to use numbers comfortably, and to employ the research tools necessary to analyze data lessen barriers to carrying out professional and economic roles. Prior to their senior year, all students must satisfactorily complete a Quantitative/Formal Reasoning (QFR) course—those marked with a "(Q). Students requiring extra assistance (as assessed during First Days) are normally placed into Mathematics 100/101/102, which is to be taken before fulfilling the QFR requirement.

The hallmarks of a QFR course are the representation of facts in a language of mathematical symbols and the use of formal rules to obtain a determinate answer. Primary evaluation in these courses is based on multistep mathematical, statistical, or logical inference (as opposed to descriptive answers).

Courses that may be used to meet the requirement in 2015-2016:

- ASTR 111(F) Introduction to Astrophysics (Q)
- ASTR 211(F) Astronomical Data Acquisition and Analysis (Q)
- ASTR 402(F) Between the Stars: The Interstellar Medium (Q)
- BIMO 321(F) Biochemistry I: Structure and Function of Biological Molecules (Q)
- BIMO 322(F) Biochemistry II: Metabolism (Q)
- BIOL 202(F) Genetics (Q)
- BIOL 203(F) Ecology (Q)
- BIOL 214T(F) Mathematical Ecology (Q)
- BIOL 302(F) Communities and Ecosystems (Q)
- BIOL 305(F) Evolution (Q)
- BIOL 321(F) Biochemistry I: Structure and Function of Biological Molecules (Q)
- BIOL 322(F) Biochemistry II: Metabolism (Q)
- CHEM 116(F) Chemistry and Physics of Cooking (Q)
- CHEM 151(F) Introductory Concepts of Chemistry (Q)
- CHEM 153(F) Introductory Concepts of Chemistry: Advanced Section (Q)
- CHEM 155(F) Principles of Modern Chemistry (Q)
- CHEM 156(F) Organic Chemistry: Introductory Level (Q)
- CHEM 321(F) Biochemistry I: Structure and Function of Biological Molecules (Q)
- CHEM 322(F) Biochemistry II: Metabolism (Q)
- CSCI 102T(F) The Socio-Techno Web (Q)
- CSCI 134(F) Introduction to Computer Science (Q)
- CSCI 135(F) Diving into the Deluge of Data (Q)
- CSCI 136(F) Data Structures and Advanced Programming (Q)
- CSCI 237(F) Computer Organization (Q)
- CSCI 256(F) Algorithm Design and Analysis (Q)
- CSCI 326(F) Software Methods (Q)
- CSCI 334(F) Principles of Programming Languages (Q)
- CSCI 336(F) Computer Networks (Q)
- CSCI 337(F) Digital Design and Modern Architecture (Q)
- CSCI 339(F) Distributed Systems (Q)
- CSCI 356(F) Advanced Algorithms (Q)
- CSCI 361(F) Theory of Computation (Q)
- CSCI 372T(F) Visual Media Revolution (Q)
- CSCI 434T(F) Compiler Design (Q)
- ECON 110(F) Principles of Microeconomics (Q)
- ECON 120(F) Principles of Macroeconomics (Q)
- ECON 213(F) Introduction to Environmental and Natural Resource Economics (Q)
- ECON 231(F) Financial Markets (Q)
- ECON 251(F) Price and Allocation Theory (Q)
- ECON 252(F) Macroeconomics (Q)
- ECON 255(F) Econometrics (Q)
- ECON 356(F) Empirical Methods in Macroeconomics (Q)
- ECON 378(F) Long-Run Perspectives on Economic Growth (Q)
- ECON 379(F) Program Evaluation for International Development (Q)
- ECON 381(F) Global Health Policy Challenges (Q)
- ECON 384(F) Corporate Finance (Q)
- ECON 385(F) Games and Information (Q)
- ECON 386(F) Environmental and Natural Resource Policy (Q)
- ECON 389(F) Tax Policy in Emerging Markets (Q)
- ECON 459(F) Economics of Institutions (Q)(W)
- ECON 471(F) Topics in Advanced Econometrics (Q)
- ECON 475(F) Advanced Microeconomic Theory (Q)
- ECON 513(F) Empirical Methods in Macroeconomics (Q)
- ECON 514(F) Tax Policy in Emerging Markets (Q)
- ECON 518(F) Environmental and Natural Resource Policy (Q)
- ECON 523(F) Program Evaluation for International Development (Q)
- ENVI 203(F) Ecology (Q)
- ENVI 213(F) Introduction to Environmental and Natural Resource Economics (Q)
ENVI 312(F) Communities and Ecosystems (Q)
ENVI 386(F) Environmental and Natural Resource Policy (Q)
GEOS 301(F) Structural Geology (Q)
MATH 113(F) The Beauty of Numbers (Q)
MATH 130(F) Calculus I (Q)
MATH 140(F) Calculus II (Q)
MATH 150(F) Multivariable Calculus (Q)
MATH 151(F) Multivariable Calculus (Q)
MATH 200(F) Discrete Mathematics (Q)
MATH 209(F) Differential Equations (Q)
MATH 210(F) Mathematical Methods for Scientists (Q)
MATH 250(F) Linear Algebra (Q)
MATH 307(F) Mathematical Modeling: Dynamics of Infectious Disease (Q)
MATH 313(F) Introduction to Number Theory (Q)(W)
MATH 323(F) Applied Topology (Q)
MATH 326(F) Differential Geometry (Q)(W)
MATH 341(F) Probability (Q)
MATH 350(F) Real Analysis (Q)
MATH 351(F) Applied Real Analysis (Q)
MATH 355(F) Abstract Algebra (Q)
MATH 361(F) Theory of Computation (Q)
MATH 367(F) Homological Algebra (Q)
MATH 372(F) Complex Analysis (Q)
MATH 382(F) Harmonic Analysis (Q)
MATH 394(F) Galois Theory and Modules (Q)
MATH 401(F) Functional Analysis (Q)
MATH 403(F) Measure and Ergodic Theory (Q)
MATH 410T(F) Mathematical Ecology (Q)
MATH 419(F) Algebraic Number Theory (Q)
MATH 420T(F) Analytic Number Theory (Q)
MATH 475(F) Methods in Mathematical Fluid Dynamics (Q)
MATH 478(F) On Expressing Numbers (Q)
STAT 101(F) Elementary Statistics and Data Analysis (Q)
STAT 201(F) Statistics and Data Analysis (Q)
STAT 340(F) Categorical Data Analysis (Q)
STAT 341(F) Probability (Q)
STAT 346(F) Regression and Forecasting (Q)
STAT 355(F) Multivariate Statistical Analysis (Q)
STAT 360(F) Statistical Inference (Q)
STAT 442(F) Computational Statistics and Data Mining (Q)
PHIL 203(F) Logic and Language (Q)
PHYS 107(F) Spacetime and Quanta (Q)
PHYS 131(F) Introduction to Mechanics (Q)
PHYS 132(F) Electromagnetism and the Physics of Matter (Q)
PHYS 141(F) Mechanics and Waves (Q)
PHYS 142(F) Foundations of Modern Physics (Q)
PHYS 151(F) Seminar in Modern Physics (Q)
PHYS 201(F) Electricity and Magnetism (Q)
PHYS 202(F) Vibrations, Waves and Optics (Q)
PHYS 210(F) Mathematical Methods for Scientists (Q)
PHYS 301(F) Quantum Physics (Q)
PHYS 302(F) Stat Mechanics & Thermodynamics (Q)
PHYS 405(F) Electromagnetic Theory (Q)
PHYS 418(T) Gravity (Q)
PHYS 451(F) Condensed Matter Physics (Q)
PHYS 475(F) Methods in Mathematical Fluid Dynamics (Q)
POEC 253(F) Empirical Methods in Political Economy (Q)
PSCI 211(F) Public Opinion and Political Behavior (Q)
PSYC 201(F) Experimentation and Statistics (Q)