

## **THEME AND APPROACH COURSES**

### **LOGICAL AND QUANTITATIVE REASONING (LQR)**

Logical and quantitative reasoning are among the fundamental ways of developing arguments and evidence in support of claims, theories, and hypotheses. These approaches utilize a combination of inductive, deductive, mathematical or statistical approaches. Courses meeting this requirement will expose students to the principles governing logical inference, the rationale behind prediction, risk, decision making, and estimation, and the fundamental mathematical principles governing physical and natural laws. Upon completing a course in this category, students should be able to do at least two of the following:

1. Analyze and evaluate mathematical or logical arguments.
2. Demonstrate an understanding of the scope and limitations of logical reasoning, including the nature of rational norms, formal languages, and logical paradoxes.
3. Describe and assess different methods of gathering information.
4. Demonstrate the ability to comprehend quantitative information embedded in common language and, conversely, to present quantitative information in well-written essays.
5. Acquire a basic understanding of the quantification of risk.
6. Propose and validate models, as well as use them for predicting future outcomes.
7. Formulate well-organized conclusions supported by quantitative evidence and statistical inference.

### **COURSES THAT FULFILL REQUIREMENT**

- 50:120:283 Principles and Practices of Quantitative Biology (LQR)
- 50:198:100 A Tour Through Computer Science (LQR)
- 50:198:105 Introduction to Computer Engineering Science (LQR)
- 50:198:110 Introduction to Computing (LQR)
- 50:198:111 Programming Fundamentals (LQR)
- 50:198:171 Mathematical Foundations of Computer Science (LQR)
- 50:198:213 Data Structures (LQR)
- 50:198:271 Design and Analysis of Algorithms (LQR)
- 50:198:313 Software Design Comm App (LQR)
- 50:202:302 Statistics for Criminal Justice (LQR)
- 50:220:102 Microeconomic Principles (LQR)
- 50:220:103 Macroeconomic Principles (LQR)
- 50:615:336 Modern American Grammar (LQR)
- 50:640:121 Unified Calculus I (LQR)
- 50:640:130 Calculus for Business, Economics, and Life Sciences (LQR)
- 50:640:182 Elements of Probability (LQR)
- 50:640:237 Discrete Mathematics (LQR)
- 50:730:101 Introduction to Logic, Reasoning, and Persuasion (LQR)
- 50:730:201 Symbolic Logic (LQR)
- 50:790:203 Quantitative Methods in Political Science (LQR)
- 50:790:204 Political Methods (LQR)
- 50:790:307 Public Policy Analysis (LQR)
- 50:830:250 Statistics for Social Sciences (LQR)