Harley White
Class of 2014

Interdisciplinary Major Committee:
Dr. Ralph Scott, Professor, Economics and Business
Dr. Megan Leonard, Associate Professor, Economics and Business
Dr. Duff Campbell, Associate Professor, Mathematics and Computer Science

Interdisciplinary Major Proposal - Mathematical Economics

Mathematics is an integral part of economic theory and research. Economists use mathematical concepts and models are important for the development of theoretical concepts in economics, such as optimizing behaviors and comparative statics. Mathematical models allow economists to formulate and rigorously test the validity of economic theories; economic theories are most effective when they are grounded in mathematical models, empirical data, and analysis. These models also allow economists to refine economic theories to make them more representative of actual events.

Graduate schools require higher mathematical classes, such as linear algebra and differential equations, for their economic programs. Exposing myself to these subjects during my undergraduate studies will ensure that I am adequately prepared for graduate school.

My major is divided into four parts: Statistics, Economics, Mathematics, and the Capstone experience. *Principles of Statistics* is an essential foundation for advanced mathematical economic work and research. Additionally, I will take *Econometrics and Forecasting* that will allow me to work with advanced regression analysis and other associated statistical methods.

My economic theory classes will be *Intermediate Microeconomics, Intermediate Macroeconomics, International Economics, Industrial Organization,* and *Public Finance.* These classes will provide a sound foundation in economic theory as it relates to international systems, governments, and aggregate economies. I will also participate in an independent study in mathematical economics.

My courses in mathematics will include *Calculus I and II, Multivariable Calculus, Differential Equations,* and *Linear Algebra.* These math courses will be essential in evaluating optimization problems, modeling the behavior of complex systems of dynamic analysis and growth models, and solving matrices valuable in comparative static analyses and models constructed on systems of equations.

Finally, my capstone project, *Economic Research*, will allow me to apply all the mathematical and economic techniques that I will have learned into a final research project. Ultimately, I hope to use the skills I will learn from a Mathematical Economics major and further schooling to work with government officials and agencies on monetary policy.

Course Requirements:

Economics Foundation:

ECON 300 – Intermediate Microeconomics

ECON 310 – Intermediate Macroeconomics

ECON 360 – International Economics

Additional Upper-level Economics Courses:

ECON 370 – Industrial Organization

ECON 380 – Public Finance

ECON 499 – Mathematical Economics

Statistics Foundation:

BUSI 250 – Principles of Statistics

ECON 400 – Econometrics and Forecasting

Mathematical Foundations:

MATH 130 – Calculus I

MATH 140 – Calculus II

MATH 230 – Multivariable Calculus

MATH 260 – Differential Equations

MATH 270 – Linear Algebra

Capstone:

ECON 497 – Economic Research

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Dr. Ralph Scott, Supervisory Committee Chair

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3/12/12

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