Hayley Haden

Hendrix College

Class of 2021

Interdisciplinary Studies Degree in Mathematics and Economics

Mathematics and economics are two topics that are deeply intertwined. To be able to understand and analyze mass amounts of economic data, a deep mathematic understanding is also necessary. I am passionate about both of these topics and intend to pursue a career in analysis and forecasting, to do this I need a stronger mathematics focus than the economics degree at Hendrix offers.

Not only to pursue a career in analysis and forecasting but to be able to attend Economic Graduate School I will need a heavier mathematics base. Currently there are two graduate schools I have looked at and am interested in, one is Northwestern University which offers a Ph.D. in Economics and the other is the University of Texas at Austin which offers a M.A. in Economics. Northwestern's requirements for graduate school applications, from their website, are "a solid mathematics background. All students are expected to have a total of four quarters of differential and integral calculus plus linear algebra before entering the program" and the University of Texas at Austin's requirements, also from their website, are "a full calculus sequence (including multivariate calculus) prior to enrollment. A course in linear algebra is also recommended." None of these classes are required in the Hendrix economics department, rather there is a focus on accounting. To best prepare myself for my planned future in graduate school and then a career in the forecasting and analysis field I need less of an accounting foundation and more of an applied mathematics focus.

The Hendrix math department has a large focus on theoretical mathematics but for my mathematical economics plan I only need a few applied math classes. For economics, more applied mathematics is necessary to handle the large amounts of data or to create mathematical inferences about the natural world. To create the strong mathematic foundation, I need for graduate school and entering the workforce in my desired field I want to add the beneficial applied mathematics classes to my degree.

Along with a strong math foundation, a demonstrated ability to research is also necessary for graduate school admittance. Because of this I plan to continue with the economic capstone because it is an opportunity to research and I will have the freedom to incorporate advanced mathematics in my research analysis. The economic research capstone is either a project for the Baker Prize or the class ECON 497 Economic Research. Both of these would require me to create and complete a research projects which will help to prepare me for graduate school and my future career.

I have created a degree plan which closely follows the Hendrix economics degree plan but replaced the accounting classes with classes of applied mathematics especially those which are required for graduate school admission. I have also ensured that any classes that overlap between the Economics and Mathematics departments are required for me to complete this degree. Lastly, I have eliminated two options for an economics capstone and only left those which require a research project because demonstrating an ability to research can help me get into graduate school.

Dr. Duff Campbell _____

Dr. Meagan Leonard _____

Dr. David Sutherland _____

Mathematics and Economics Degree Plan (Final)

13 Courses distributed as follows:

- MATH 130 *Calculus I*
- MATH 140 *Calculus II*
- ECON 200 *Microeconomic Theory*
- ECON 210 *Macroeconomic Theory*
- BUSI 250 *Principles of Statistics*
- MATH 270 *Linear Algebra*
- ECON 300 *Advanced Microeconomic Theory*
- ECON 430 *Management Science*
- 3 upper-level mathematics courses from the following:
  - MATH 230 *Multivariable Calculus*
  - MATH 260 *Differential Equations*
  - MATH 350 Real Analysis
  - MATH 365 Mathmatical Models
  - MATH 340 Combinatorics
- 2 upper-level economics courses from the following:
  - ECON 310 *Advanced Macroeconomic Theory*
  - ECON 320 *Money, Banking, and Credit*
  - ECON 340 *Environmental Economics*
  - ECON 350 *History of Economic Thought*
  - ECON 360 *International Economics*
  - ECON 370 *Industrial Organization*
  - ECON 380 *Public Finance*
  - ECON 385 *Labor Economics*
  - ECON 400 *Econometrics and Forecasting*
  - ECON 410 *Corporate Finance*
  - ECON 497 *Economic Research*

Senior Capstone Experience

The Senior Capstone Experience for the accounting major, the economics major, and the economics and business major may be accomplished in one of two ways:

- Completion of the course ECON 497 *Economic Research* with a grade of "C" or above;
- Successful completion of an economic research project in conjunction with the Baker Prize in Economics.